

Appendix D – Response to DEIS Comments

On March 25, 2011 the DEIS was sent to 156 individuals, groups, and agencies. The DEIS was also posted on the Malheur National Forest website. On March 25, 2011, a Notice of Availability for the Galena Project DEIS was published in the Federal Register. A legal ad appeared in the John Day, OR Blue Mountain Eagle newspaper on March 23, 2011. Three hundred-two written comments were received and considered in the completion of this FEIS.

Tribal Involvement

The concerns of the Burns Paiute Tribe, The Confederated Tribes of the Umatilla, and The Confederated Tribes of the Warm Springs Reservation were solicited through project scoping and review of the DEIS. Comments to the DEIS were received from The Confederated Tribes of the Warm Springs Reservation and considered in the preparation of the FEIS.

Response to Comments

All comments received were given careful consideration by the interdisciplinary team (IDT). Comments on the DEIS were identified, categorized by resource, and responded to by resource specialists on the IDT. Each comment was weighed on its own merit against legal, technical, and resource capability considerations. The comments were responded to by considering modifications to the preferred alternative, making factual corrections, supplementing or modifying the analysis, explaining rationale for the decision, or simply acknowledging that the comment was noted. The letters are available for public review in the project file. Each respondent will be mailed a copy of the FEIS which includes responses to the comments.

Letter #	Commenter	Number of Comments
1	Blue Mountain Biodiversity Project	248
2	Grant County Public Forest Commission	20
3	US Environmental Protection Agency	4
4	Oregon Wild	9
5	Confederated Tribes of the Warm Springs Reservation	2
6	King Incorporated	2
7	Grant County Conservationists	4
8	Oregon Chapter Sierra Club	12
9	Oregon Water Resources Department	1

Commenter	Comment/Response
General Comments and Comments on Legal Requirements	
1-1	<p>Why were responses to comments not included in the DEIS?</p> <p>Responses to scoping comments were included in Appendix E of the DEIS. There was a misprint in the introduction that stated the response to comments were in the project record.</p>
1-2	<p>...proposing amendments to the Regional Foresters Plan Amendment Number 2 and PACFISH it is obviously not compliant w/applicable Forest wide goals...</p> <p>The introduction lists some of the amendments to the current Forest Plan, not proposed amendments associated with this project. Proposed amendments specific to this project are discussed in Chapter 2 of the DEIS.</p>
2-1	<p>The Proposed Action fails to meet this mandate (The Organic Act of 1897) by providing a program that achieves a long term “high yield”....”continuous supply of timber” needed by the economy of Grant County which produces forest products for the “necessities of the citizens of the United States”.</p> <p>The Organic Act of 1897 is the original act governing the administration of National Forest System (NFS) lands. Today, it is one of several federal laws under which the U.S. Forest Service operates, including, but not limited to the Multiple-Use Sustained-Yield Act, the Endangered Species Act, the Clean Water Act, the National Forest Management Act, as well as several other laws, executive orders, and the Malheur National Forest Land and Resource Management Plan direction and guidelines. The DEIS listed the Laws and Regulations under which the proposed action was developed in pages 18-20. A description of additional laws and regulations applicable to each resource area can be found in Chapter 3 of the FEIS. While the Organic Act remains significant, it must be read in conjunction with the later acts, which expand the purpose and uses of NFS lands as well as provide legal and regulatory requirements that must be met in the management of NFS lands.</p> <p>The Forest Service developed the proposed action and all alternatives with the express goal of meeting the purpose and need of the project while at the same time meeting the legal requirements of all applicable laws, regulations, and Forest Plan guidance</p>
2-2	<p>The Law (The Multiple Use Sustained Yield Act of June 12, 1960) specifically directs that the national forest be administered in part for the “high yield” of timber products. When the law was enacted in 1960, “timber” meant saw logs for lumber production. Biomass and other related products were not a primary consideration. The Proposed Action has no discussion of the “relative value of the various resources” as required.</p> <p>Timber products cover a wide range of uses of the trees grown on the National Forests. Wood chips for pulp and fiberboard, posts and poles from small diameter trees, extraction of chemicals, and fuel wood were uses common nationwide in the 1960s as well as now. Forest products have always been considered to be more than just saw logs.</p>
2-3	<p>The Proposed Action fails to meet the mandates of NFMA.</p> <p>See response to 2-1.</p>

Commenter	Comment/Response
2-12	<p>All reference to Forest Plan Amendment No. 2 must be removed from the Plan. Amendment No. 2 violates the spirit and intent of the Multiple Use Sustained Yield Act by requiring “snags should be retained at levels to provide for 100% population levels of primary cavity nesters”. Managing for 100% of any resource flies in the face of Congressional intent. Cavity nesters should be managed on sustainable levels recognizing that this requirement will have an adverse effect on other resources including wildlife species.</p> <p>Regional Forester’s Forest Plan Amendment #2 is a legal, valid amendment to the Malheur Forest Plan and is part of the regulatory framework that the Forest must work within.</p>
2-13	<p>The GCPFC finds no rational for not choosing Alternative 4 over the Preferred Alternative. Alt 4 provides a better contribution of benefits to the citizens of Grant County with no apparent negative impacts. There is no stated or implied rational to choose Alternative 2 over Alternative 4 which will increase sawlog volume offered by nearly 25%.</p> <p>Comment noted. The deciding official will consider all effects of each action alternative as well as the No Action alternative in making the decision as to which alternative would best meet the purpose and need of the project as well as Forest Plan goals and desired future condition.</p>
8-11	<p>The identification of additional non-motorized opportunities and facilities should be added to the projects purpose and need and adequately evaluated in the final EIS. The Purpose and Need of a project should reflect the Agency’s multiple use charge</p> <p>The analyses of projects under NEPA are for specific purposes to meet specific needs. While the Galena Project deals with a range of activities the overriding purpose and need of the project is to move the forest toward HRV and to reduce fuels. A project specific NEPA project may be analyzed in the future to address non-motorized opportunities and facilities.</p>
Purpose and Need	
1-4	<p>You can’t ignore the ecological impacts of logging and still develop more resilient stands while logging.</p> <p>The various ecological impacts of logging are discussed and disclosed in Chapter 3 of the FEIS by resource.</p>
1-5	<p>Goal of future LOS is not advanced by logging 15-21” dbh trees which increases deficit in this size class of trees and preventing mature trees from reaching LOS status. The existing area deficit in OFSS & OFMS is further set back by logging live trees &/or snags up to 21”.</p> <p>The silvicultural prescriptions for thinning and return to early seral species treatments call for retaining the largest trees in the stand and removing the smaller ones. When trees 15-21” are cut there are larger trees in the stand that are being retained that will provide the large tree component for old forest structure</p>
1-6	<p>...mimicking historical conditions may not be appropriate for changing climate & different structural composition due to past logging...</p> <p>The historical conditions indicate that the forest composition was more suited to a</p>

Commenter	Comment/Response
	warmer and drier climate than the current composition. There was more ponderosa pine and less grand fir than exists now, plus stand densities were much lower so that the trees were under less competition for water and nutrients, enabling them to better withstand drought conditions.
1-7	HRV may not be accurate due to lack of data or data that is baseline post heavy logging. HRV for the Blue Mountain National Forests was developed by the area forest ecologist with assistance from the forest silviculturists. The baseline used was pre-European settlement which would be before heavy logging occurred.
1-8	What is the data-from where, what type, and from what dates to support project area HRV assumptions? HRV was developed using old photographs, survey notes and early journals, land survey documentation, stumps in harvested stands, and examination of existing age and species distributions in undisturbed stands.
1-9	Higher elevation stands do not look like they were predominately ponderosa pine and western larch as assumed in the DEIS. Correct, as elevation increases the proportion of ponderosa pine decreases and the proportion of Douglas-fir, grand fir, and spruce increases. This project is mostly focused on treating the hot dry and warm dry biophysical environments where ponderosa pine was more prevalent in the past. In the cool moist biophysical environment less treatment acres are planned, but in those areas there are fewer early seral species than historically existed. Therefore, some treatments are planned to begin moving the stands towards the historical composition.
1-10	What is the evidence for historical levels of fuel loads? See Response to 1-8.
1-11	Larger scale, high intensity fire is probably natural in the higher elevations. Correct, but currently the stand conditions foster much larger fires with higher severity than occurred historically.
1-12	Road construction and reconstruction is not consistent with reducing elk disturbance. There is a net reduction in the total miles of open roads in all alternatives. Most new road construction is to remove roads located in riparian areas to reduce future impacts to water quality. Reconstruction is to existing roads to bring them up to current safety standards and reduce environmental impacts. See pages 30-32 for more information.
1-13	(Road construction and reconstruction) likely increase sedimentation of streams See response to 1-12
1-14	The proposed action is not consistent w/the expressed Purpose and Need goals. All of the action alternatives improve the resiliency of the forest by reducing stand densities and changing the species composition to more historical conditions, reduce fuel loading, reduces road densities and decreases the number of roads in riparian areas, increases the rate of development of large trees and improves the sustainability of existing old forest structure, and provides wood products and employment for local

Commenter	Comment/Response
	economic stability.
1-16	<p>The proposed action violates the Forest Plan standard for reduced road densities.</p> <p>There is a net reduction in the total miles of open roads in all alternatives. See pages 30-32 for more information.</p>
1-17	<p>The desired condition for vegetation is only applicable for lower elevation ponderosa pine dominated stands & misrepresents the historical condition of higher elevation moist mixed conifer stands which would naturally burn at mixed or high intensity over larger areas.</p> <p>Correct, the aim of this project is to do just that. Return the lower elevation hot dry and warm dry biophysical environments to a frequent, low intensity fire regime and the cool moist biophysical environment to a mixed intensity fire regime. This would also reduce the size of the fires in the higher elevations to smaller, more historical burn sizes (see response to comment 1-11).</p>
1-19	<p>We support Forest Plan Amendment that increases size of DOGs only if this does not actually allow logging of existing LOS or OG by replacing it with younger stand.</p> <p>No designated old growth areas (DOGs) would be harmed in this project. The only treatments planned in other old forest stands would be to convert them from OFMS to OFSS, which is currently lacking in the project area.</p>
Proposed Action and Alternatives	
1-21	<p>Logging up to 20.9 dbh is not understory removal, given the deficit in 15-21" trees. Instead this would remove many of the more fire resistant mature trees necessary for returning to historic levels of LOS/OG.</p> <p>Most trees to be removed are the smaller trees in the stand. Where trees 15-21" would be removed there would be larger trees retained to become old forest structure. See pages 27-29.</p>
1-22	<p>This is a lot (5,040 acres) of commercial mature tree removal for the area, exacerbating impacts to wildlife habitat, water yields, and carbon storage from past heavy logging.</p> <p>Most of the commercial thinning will be 9-15" trees with occasional trees over 15" harvested. These stands are generally second growth trees which grew up after the railroad logging in the area. Thinning will increase the growth rates creating large trees sooner, improving water yields, and reducing carbon loss from wildfires. See response to 1-58 for more information.</p>
1-23	<p>The much greater removal of mature trees compared to small tree density reveals this sale being much more about logging revenue than about meeting ecological goals.</p> <p>Few mature trees would be removed; most trees to be harvested are second growth trees less than 100 years old. See pages 27-29 and response to 1-58.</p>
1-24	<p>What are the constraints on the size or type of biomass removed? Is this in addition to the PCT acreages or the same material?</p> <p>Biomass material is less than commercial saw log size, generally under 9" dbh. It would be removed from select precommercial thinning or commercial harvest units where ground based skidding is appropriate. See the full description on page 29. The units are</p>

Commenter	Comment/Response
	listed in the tables in Appendix A
1-25	<p>We are opposed to prescribed burning of Inventoried Roadless Areas and Potential Wilderness Areas, as these areas tend to be higher elevation mixed conifer areas naturally subject to mixed to high severity areas and there is a need to leave some areas of the Forest unmanaged and at higher densities for wildlife habitat needs and research control studies.</p> <p>The prescribed burning areas were planned to burn mostly hot dry and warm dry biophysical environments where frequent, low intensity fires were historically common. The design of logical burning boundaries necessitated including some cool moist environments but they are a minor component and are not expected to burn as much as the adjoining warmer and drier areas. See page 29.</p>
1-26	<p>Roads in riparian areas should be decommissioned & rehabilitated, but not cause the construction of yet more new roads.</p> <p>The road activities associated with this project were designed to meet the purpose and need of the project for each of the action alternatives. Roads were evaluated by all resource specialists and those felt necessary for future management, including fire suppression and prescribed burning, were closed while excess roads were identified for decommissioning. There is a net reduction in the total miles of open roads in all alternatives. Most new road construction is to remove roads located in riparian areas to reduce future impacts to water quality. Reconstruction is to existing roads to bring them up to current safety standards and reduce environmental impacts. See pages 30-32 for more information. The associated effects of the road activities are analyzed under each resource section in Chapter 3.</p>
1-27	<p>We are opposed to all new and “temporary” road construction and to extensive road reconstruction, especially if this involves re-opening closed or overgrown roads.</p> <p>Comment noted. Also see response to 1-26.</p>
1-28	<p>We are opposed to logging up to 21” dbh for “encroaching” conifer thinning in aspen. There should be a size limit of 12” dbh for thinning any encroaching conifers with no trees adjacent to streams or contributing shade to streams cut.</p> <p>In some aspen stands most of the competition is from larger conifers, retaining these trees would reduce the viability of the aspen stand to survive and reproduce.</p>
1-31	<p>..concerned that the Galena Timber Sale as proposed would violate the Multiple Use Sustained Yield Act by impairing the land.</p> <p>The Galena Project FEIS discloses the potential effects of the alternatives on various resources in Chapter 3.</p>
1-34	<p>The NFMA also requires protection of the viability of all native vertebrate species, but this is not disclosed.</p> <p>The design criteria listed in Chapter 2 are in place to limit impacts to resources, including native vertebrate species. The effects of the project for each resource is disclosed in Chapter 3 of the FEIS.</p>
2-15	<p>The proposed action totally fails to address one of the most important elements of any forest management program....endemic and catastrophic salvage. Salvage of</p>

Commenter	Comment/Response
	<p>merchantable material should, as a part of this document, be planned for and clearly stated in Management Action.</p> <p>Areas of commercially viable salvage are currently unknown, since NEPA is to be project location and size specific, a “programmatic plan” cannot be evaluated for its potential effects on the environment. If substantial mortality occurs a decision will be made at that time to prepare a NEPA review of the salvage proposal.</p>
6-1	<p>Decommissioning is a waste of already dwindling funds to permanently “close” a road....if you ...administratively close the roads then in emergency and fire situations there is still access possible to more areas.</p> <p>Roads were evaluated by all resource specialists and those felt necessary for future management, including fire suppression and prescribed burning, were closed while excess roads were identified for decommissioning.</p>
7-1	<p>New road construction: +/- 13 miles New road; “reconstruction”; +/- 21 miles. Total: 34 miles de facto new road construction. Such a proposal is especially unacceptable coming at a time when other National Forests in the Pacific Northwest are being forced to close to public access thousands of miles of existing roadways for lack of funding to ensure maintenance to even minimal standards of public safety.</p> <p>There is a net reduction in the total miles of open roads in all alternatives. Most new road construction is to remove roads located in riparian areas to reduce future impacts to water quality. Reconstruction is to existing roads to bring them up to current safety standards and reduce environmental impacts. See pages 30-32 for more information.</p>
1-36	<p>Some of the issues eliminated from detailed study are not outside the scope of the purpose and need of the proposed action, not already decided by law or regulation, are not irrelevant and are supported by scientific or factual evidence ... yet they are significant and should have been analyzed in detail.</p> <p>The issues eliminated from further study and the reasons for doing so are given on page 24 of the FEIS. In addition, the commenter does not provide supporting scientific or factual evidence that the issues eliminated from detailed study are significant and were wrongly eliminated from further study.</p>
1-37	<p>Construction of new and temporary roads could cause resource damage in the project area such as channelizing water, erosion, disturbance to wildlife habitat, and the spread of invasive weeds.</p> <p>The effects of road construction to water erosion, wildlife habitat, and invasive plants are discussed for each alternative of the FEIS as follows: erosion pages 135-138; wildlife: pages 184, 188, 196-200, 206, 208-210, 217, 218, 227, 236, 237; and invasive plants: pages 272 and 273.</p>
1-38	<p>We share the concerns of all the analysis areas preceded by a *. (Reference to Chapter 2, page 2 of the DEIS list of Analysis Issues, included are 303(d) listed streams, water quality, Hydrology, species impact, wildlife connectivity corridors, big game security, inventoried roadless areas, potential wilderness areas, and undeveloped areas, sensitive soils, spread of invasive weeds, cultural resources, global warming and climate change.)</p> <p>The IDT identified the Analysis Issues from issues and concerns received from the public or other agencies that reflect potential effects the proposed action or action alternatives would have on resources or the environment. All of the issues were</p>

Commenter	Comment/Response
	analyzed in detail in Chapter 3 of the FEIS, by resource, and were used to compare effects of the alternatives.
1-39	<p>Concerned about impacts of road construction not about decreased access from road decommissioning. (Reference to the Analysis Issue: Hydrology on p. 2, Ch 2. DEIS)</p> <p>The National Environmental Policy Act requires the agency to evaluate all of the effects to the human environment of each alternative within the project area. The impacts of road construction and decommissioning for each of the action alternatives are found in Chapter 3 of the FEIS.</p>
1-40	<p>Based on the discussion of alternatives considered but eliminated from detailed study and of Analysis Issues, the Galena DEIS does not include an adequate range of alternatives.</p> <p>The FEIS documents consideration of eight alternatives, including: the no action alternative; the proposed action, two other action alternatives, and four alternatives considered but eliminated from detailed study. The alternatives considered, but eliminated from detailed study are rightfully considered as part of the range of alternatives considered in keeping with CEQ's guidance in their document: "40 Most Asked Questions". Question 1a of this document states: 1a. Range of Alternatives. What is meant by the "range of alternatives" as referred to in Sec. 1505.1(e)</p> <p>A. The phrase "range of alternatives" refers to the alternatives discussed in environmental documents. It includes all reasonable alternatives, which must be rigorously explored and objectively evaluated, as well as those other alternatives, which are eliminated from detailed study with a brief discussion of the reasons for eliminating them. Section 1502.14. A decision maker must, in fact, consider all of the alternatives discussed in an EIS. Section 1505.1(e).</p> <p>The Forest Service Handbook contains further discussion on the range of alternatives at FSH 1909.15; Section 14:</p> <p>As established in case law interpreting the NEPA, the phrase "all reasonable alternatives: has not been interpreted to require that an infinite or unreasonable number of alternatives be analyzed, but does require a range of reasonable alternatives be analyzed whether or not they are within the Agency jurisdiction to implement. (40 CFR 1502.14 (c)).</p> <p>And at FSH 1909.14.4:</p> <p>The range of alternatives considered by the responsible official includes all reasonable alternatives to the proposed action that are analyzed in the document, as well as other alternatives eliminated from detailed study. Alternatives not considered in detail may include, but are not limited to, those that fail to meet the purpose and need, are technologically infeasible or illegal, or would result in unreasonable environmental harm.</p>
1-41	<p>Somehow the scope of this project has been narrowed to a timber harvest although the purpose and need & Forest Plan goals could be met without mature tree logging.</p> <p>The purpose and need of the project is detailed in Ch. 1 of the FEIS. The Galena Project area encompasses approximately 37,200 acres out of which 8,405 acres are proposed for commercial harvest with 1,505 of the commercial thinning acres to be pre-commercial thinned (within CT units) with associated road construction, reconstruction, and</p>

Commenter	Comment/Response
	maintenance activities. Other activities proposed to meet the purpose and need of the project are pre-commercial thinning on 1,373 additional acres, prescribed burning on 19,913 acres, the decommissioning of 21.2 miles of roads, and the restoration of 28 aspen stands. While commercial harvest is one of the tools utilized to meet the purpose and need of the project, given the fact that only 22% of the project area is planned for commercial harvest the Forest respectfully disagrees that the scope of the project is narrowed to timber harvest.
1-42	<p>The Forest Service should have analyzed an alternative that would not remove satisfactory cover in particular and hold to Forest Plan standards for cover.</p> <p>An alternative that retained all cover for big game was considered, but was eliminated from detailed study for reasons given on page 24 of the FEIS.</p>
1-43	<p>We support the FS decision not to propose a Forest Plan amendment to remove trees greater than 21"dbh given that there is both a regional and project area deficit in trees of this size class (& also for 15-21"dbh) compared to historical condition predating commercial logging. This is well established in the ICBEMP science.</p> <p>The intent of the Regional Foresters Eastside Forest Plan Amendment #2 was to maintain and enhance late and old structure forest (LOS) stands for wildlife species dependent on these habitats. Part of the purpose and need of this project was to accelerate the development of future LOS single stratum wildlife habitat.</p>
1-44	<p>Reducing canopy bulk density would not be necessary to significantly reduce competition, stress, and fire risk. Most of the high density is from trees less than 8-12"dbh. (Reference to not analyzing an alternative with no commercial harvest.)</p> <p>Canopy bulk density has a direct correlation with crown fire initiation. One of the purposes of the project is to reduce crown fire potential.</p>
1-45	<p>Failure to analyze this alternative precludes analysis to determine if FS assumptions are correct or not...eg where crown fire potential could be reduced and if that could be done without CT. (Reference to not analyzing an alternative with no commercial harvest.)</p> <p>Page 25 of the FEIS documents the reason for not analyzing this alternative in detail.</p>
1-46	<p>What is the "acceptable threshold for fire severity"? (Reference to not analyzing an alternative with no commercial harvest.)</p> <p>The "acceptable threshold for fire severity", based upon the context, is prescribed fire that kills large diameter trees.</p>
1-47	<p>It is very unlikely that the higher elevation mixed conifer stands had fire return intervals of 1-35 years.</p> <p>Correct, but the intent of under burning in cool moist stands is not to change stand structure but to reduce fuel loading so that the stands would naturally burn with mixed severity rather than a large scale stand replacement burn that is not within the HRV.</p>
1-48	<p>This conclusion ignores science recommending controlling fire risk around critical wildlife habitat such as roadless areas, not in them. (Reference to not analyzing alternative with no burning in IRAs or PWAs)</p> <p>The Forest is not aware of any scientific publication that recommends controlling fire risk around IRAs or PWAs opposed to in them. The commenter was sent a letter on</p>

Commenter	Comment/Response
	10/04/2011 requesting the referenced scientific information be forwarded so that the IDT could consider the comment fully. As of the date of printing, the Forest had not received a response.
1-49	Why is there no alternative offered that would not violate Forest Plan standards for satisfactory cover? This is an indication that the FS persists in degrading habitat to get out the cut no matter what the consequences and contradictions w/Forest goals.
	Please see response to 1-42 and 1-54. Concerning “get out the cut” please see response to 1-41. The effects of cover reduction to wildlife are discussed on pages 184, 185, 194-199, 234, of the FEIS.
1-53	This does not account for larger tree size & more large trees increasing canopy closure to 40-50% in many OFSS stands prior to OG logging. (Reference to satisfactory cover reduction discussion in Ch. 2, pg. 5, paragraph 3)
	The objective of commercial thinning is to reduce stand density to a level that maintains stand health for the next 50 years. Thinning increases tree growth so it is not out of the question that canopy closure would increase as vigor and growth of the remaining trees increases.
1-54	The 2003 Regional Direction was politically motivated for greater timber production not designed to protect wildlife habitat or ecological values. These are Forest Values w/legal protection whereas attaining a theoretical HRV is not legally required. (In the context of the proposed Forest Plan amendment reducing satisfactory cover for big game below Forest Plan Standards)
	The Regional Forester’s Eastside Forest Plan Amendment #2 amended all Forest Plans east of the Cascades providing overall direction for meeting desired conditions. One of the purposes of this amendment was to maintain and enhance late and old structure (LOS) forest stands for wildlife dependent on these habitats. The June 11, 2003 letter referred to on page 27 in the FEIS provides guidance for implementing Amendment #2. Specifically the letter states:
	I therefore encourage you to consider site specific Forest plan amendments where this will better meet LOS objectives by moving the landscape towards HRV, and providing LOS for the habitat needs of associated wildlife species.
	Part of the purpose and need of this project was to accelerate the development of future LOS single stratum wildlife habitat. Pages 27 and 28 provide the rational for proposing the amendment.
1-55	For most of these CT stands up to 20.9"dbh logged would mean removal of the largest trees in the stand, not just "small & medium size trees" as claimed. A better size limit for ecological sustainability would be 15"dbh.
	The objectives of commercial thinning are given on page 27 and 28 in the FEIS. In addition, based upon the specialist report submitted by the District Silviculturalist this prescription would thin small/medium size trees (7 to 20.9” dbh) in immature forest stands by thinning from below to reduce stocking levels and canopy fuels, enhance individual tree growth, and allow for the reintroduction of fire. Thinning from below means the majority of the trees to be cut are in the smallest diameter sizes (9 to 14” dbh) and relatively few trees would be harvested in the medium diameters (15 to 20.9” dbh).

Commenter	Comment/Response
1-56	Avoid felling any trees over 21" dbh for roads and landings.
	There are no alternatives that include the harvesting of trees over 21 inches. The felling of any trees over 21" would be avoided with the only exceptions being hazard trees and along roads and landings as disclosed on page 28 of the FEIS.
1-57	There should be no felling of trees >6" dbh within the riparian zone or of any contributing to shade or bank stabilization.
	There is no commercial harvest planned within RHCAs. In some aspen stands most of the competition is from larger conifers, retaining these trees would reduce the viability of the aspen stand to survive and reproduce. Conifers encroaching aspen stands would have to be removed to meet the purpose and need of the project. Specific treatment objectives for aspen restoration can be found on page 32 of the FEIS.
1-58	It is not "understory removal" if the logging goes all the way up to 20.9" dbh. A better dbh limit for this purpose would be 10-12" dbh depending on the stands mean density size.

Implementation criteria for commercial and pre-commercial thinning are intended to protect wildlife habitat. This is summarized in the FEIS in Chapter 2. See the excerpt from the Silviculture Specialist Report below for more information:

Implementation Criteria

To enhance structural diversity for wildlife and visuals while reducing fuel loadings, trees would be left at a varied spacing, as opposed to even spacing, with the density varying as much as 50% across the stands. Thin to lighter densities near the private lands and in the drier biophysical environments and at higher densities farther from the boundary and in the cooler and moister environments.

Retain "woolly" trees with stem damage, poor form, broken tops, numerous large branches, or other characteristics that make them unsuitable for commercial products are to be left for wildlife habitat, at an average of approximately one tree per acre, when available.

In stands prescribed for commercial thinning to each listed average density, the following range of densities would be used:

Variable Density Thinning Ranges

Percentage of Stand	40 ft²/acre Average	50 ft²/acre Average	60 ft²/acre Average	80 ft²/acre Average
10%	20 ft ² /acre	25 ft ² /acre	30 ft ² /acre	40 ft ² /acre
15%	30 ft ² /acre	40 ft ² /acre	45 ft ² /acre	60 ft ² /acre
50%	40 ft ² /acre	50 ft ² /acre	60 ft ² /acre	80 ft ² /acre
15%	50 ft ² /acre	60 ft ² /acre	75 ft ² /acre	90 ft ² /acre
10%	60 ft ² /acre	80–100 ft ² /acre	90–110 ft ² /acre	100–120 ft ² /acre

**Wildlife leave patches are to be taken out of the unit first, then the above percentages are to be applied to the portions of the unit that is actually*

Commenter	Comment/Response
	<i>thinned.</i>
	<p>Unthinned areas are to be left for wildlife habitat that are 3 to 5 acres in commercial thinning units and ½ -2 acres in precommercial thinning units and cover 5 to 15% of the area to be treated. In units immediately adjacent to the public/private boundary, retain unthinned patches at the 5% level.</p> <p>Openings up to ¼ acre in size are permissible in locations when suitable trees are scarce.</p> <p>The hot dry and warm dry forests have the lowest density with increasing density for cool moist, cool wet, and cold dry habitat types.</p>
1-59	<p>Understory removal should only take place in dry PP dominant lower elevation areas and return to early seral species.</p> <p>The stands recommended for this treatment have developed old forest structure characteristics and are generally composed of older ponderosa pine with some western larch and Douglas fir trees present. Regeneration of ponderosa pine, Douglas fir and grand fir underneath larger, older trees has caused the stands to become overstocked resulting in slow growth rates, increased pine beetle caused mortality and increased fire risk to large, older trees. The treatment's objective is to space the tree crowns far enough apart to reduce the chances of crown fire moving from tree to tree. Another objective is to reduce the chances of ladder fuels enhancing torching of large, old growth trees.</p>
1-60	<p>It makes no sense to log to an under stocked condition and then plant rather than let re-growth occur through natural regeneration by leaving more trees. (reference to paragraph 2 page 7 of Chapter 2 of the DEIS)</p> <p>See response to 1-59 as this comment is concerning the same treatment.</p> <p>The reading of this paragraph is confusing in the DEIS and will be clarified in the FEIS. The comment refers to the following statements: "Where early seral species are overstocked, the trees under 20.9 inches in diameter would be thinned. Any resulting under-stocked stands would be reforested by planting with early seral species to historic stocking levels." The way this was written in the DEIS gives the impression that early seral species would be thinned in overstocked stands to the point that planting would be necessary. This would not occur and was not intended to give this impression. Any overstocked early seral stands would only be thinned to the prescribed basal area. Understocked stands concern only those areas where after thinning the fir species are understocked. Those areas would then be planted with early seral species to the appropriate stocking rate.</p>
1-61	<p>This basal retention is ok in pure ponderosa pine stands as a rough guideline, but should be increased to 80-100 sq ft in mixed conifer with DF & GF, with variable density thinning & leave patches of 25-50% of each unit and dropping the best wildlife habitat units and those not really needing CT. (see survey sheets)</p> <p>See response to 1-58</p>
1-62	<p>We support leaving all trees with OG characteristics.</p>

Commenter	Comment/Response
	Under all action alternatives medium sized, older trees less than 21" dbh with old growth characteristics would be retained in commercial and pre-commercial units. In some aspen stands most of the competition is from larger conifers, retaining these trees would reduce the viability of the aspen stand to survive and reproduce. Therefore conifers within 100 feet of aspen stands would be cut and trees within 25 feet of streams would be girdled.
1-63	Drop all skyline logging units as this indicates steep slopes, often higher elevation, more potential for erosion & scarring & often naturally denser habitat.
	Skyline logging is the preferred method on steep slopes because it is less likely to cause extensive erosion than tractor logging on the same slopes.
1-64	Re: PCT Limit cutting up to 8" dbh including "cull trees" and increase leave patch size to 15-35% of the units depending on slope, aspect, buffering for woodpecker nests and springs for streams, greater density in mixed conifer stands, etc.
	See response to 1-58
1-65	We support no commercial logging or precommercial thinning within RHCAs.
	None of the action alternatives include commercial or pre-commercial thinning in RHCAs.
1-66	No downed logs should be used for biomass. Some branches should be left for nutrient recycling.
	Existing down woody material will be left on site or burned if in excessive amounts. See page 29 of the FEIS.
1-67	We support maximizing biomass utilization of material that would otherwise be burned.
	Efforts will be made to utilize biomass rather than burning it. See page 29 of the FEIS.
1-68	We are concerned that with such extensive hand, grapple, and landing pile burning (over 8,339 acres & 830 piles beyond that) that unless a biomass purchaser is assured in advance, these piles will increase fire hazard.
	See response to 1-67
1-77	Not all desired logging and fuel reduction has to take place.
	The Preferred Alternative as well as the two other action alternatives were developed to meet the purpose and need of the project. Alternative 3 has a significant reduction in the number of acres and volume of timber harvest, however to meet the purpose and need of the project the fuel treatment acres remain the same. Alternative 4 increases harvest acres and volume through commercial thinning. The No Action alternative was examined as well and is a valid alternative that was considered, however, the no action alternative does not meet the purpose and need of the project.
1-78	Drop all sale units requiring new or "temporary" road construction, major reconstruction or reopening of grown over or unused roads.
	See response to 1-26

Commenter	Comment/Response
1-81	<p>No removal of conifers within 25 feet of stream channels, springs, or wetlands.</p> <p>None of the action alternatives propose removal of conifers within 25 feet of stream channels. In the aspen stands being restored conifers within 25 feet of stream channels would be girdled.</p>
1-84	<p>Alt 3 should not build any new system roads and reduce road reconstruction and opening of closed roads also.</p> <p>The action alternatives were specifically developed to meet the purpose and need of the project. Alternative three was developed in response to key issue # 1 (potential resource damage caused by road construction). See FEIS pages 32-34.</p> <p>Road activities and their purpose are discussed for all alternatives in Chapter 2 of the FEIS. Effects of road activities are given in Chapter 3 of the FEIS for each resource affected.</p>
1-85	<p>We are in favor of more than a 42% reduction in acres proposed for CT-see our survey sheets.</p> <p>Alternative 3 reduces commercial thinning 42% from the proposed action.</p>
1-86	<p>We request that all sale units we recommend to be dropped on survey sheets are dropped and that there be a maximum 15"dbh limit for cutting in remaining CT units and aspen, or less if suggested by a low mean density diameter. We also ask for no skyline units to be included.</p> <p>Survey sheets provided by the commenter were reviewed by the District Silviculturalist. The sheets provided did not utilize any protocols known to the Forest to identify biophysical environment or plant association groups. Many of the units described as being "moist mixed conifer" were actually hot dry and warm dry forest types that had large, older, ponderosa pine and western larch with thick undergrowth of grand fir. The reasons for dropping units suggested by the survey sheets did not have rational that was found to out weigh the purpose and need of the project to improve forest health, improve sustainability of individual stands, and reduce fuels and the chance of initiating crown fire.</p>
1-87	<p>14mmbf is a lot more reasonable for leaving a diversity of wildlife habitat and lessening impacts of logging and road work, but we are still wary of the potentially artificial stand structure conversion from using the HRS and HVR management of skyline soil impacts.</p> <p>Alternative 3 proposes 14 mmbf of timber volume. The effects of Alternative 3 are discussed in Chapter 3 of the FEIS by resource.</p>
1-88	<p>We think that much of the sale area would benefit from PCT but not from CT greater than 15"dbh or from HRS or HVR greater than 12-15"dbh.</p> <p>Page 25 of the FEIS explains why pre-commercial thinning (PCT) would only partially meet the purpose and need of the project and therefore was considered, but not fully analyzed.</p>
1-89	<p>We support less pile burning but are still concerned about too many piles increasing fire risk from alt 3 if they are not purchased as biomass. Burning them contributes to climate change.</p>

Commenter	Comment/Response
	Efforts will be made to utilize slash from commercial and pre-commercial thinning as biomass. Areas within the project area identified for treatment that would include pile burning would be accomplished over a span of several years, so not all areas would be piled and burned in a single year. Any piles not utilized as biomass would be burned within one or two years after piling.
1-90	<p>The roadwork proposed for alt 3 is far more reasonable than for alt 2 but we'd still like to see fewer closed roads opened for log haul unless they are already seasonally closed and in working condition and skip the .02 mile of new road.</p> <p>See response to 1-78 and 1-84.</p>
1-91	<p>Increase the amount of road decommissioning. (Alternative 3, Road Activities)</p> <p>See response to 1-78 and 1-84.</p>
1-92	<p>We are strongly opposed to both alts 4 & 2. Both represent very large scale extensive disturbance & logging & road impacts to wildlife, soils, water quality and potentially fish.</p> <p>The deciding official considered all effects to each action alternative as well as the No Action alternative in making the decision as to which alternative to choose that would best meet the purpose and need of the project.</p>
1-95	<p>More acres of pile burning means more contribution to climate change and higher fire risk if piles are not burned or utilized promptly. Also more impacts to soils. (Alt 4)</p> <p>Efforts will be made to utilize slash from commercial and pre-commercial thinning as biomass. Areas within the project area that would be pre-commercially thinned and piled would be accomplished over a span of several years so not all areas would be piled and burned in a single year. Any piles not utilized as biomass would be burned within one or two years of implementation of the project. The impacts of pile burning to climate change for Alternative 4 are found on pages 301 and 302 in the FEIS. The impacts of pile burning on soils can be found on pages 29 and 31 of Chapter 3 of the DEIS.</p>
1-96	<p>More road construction and opening of closed roads means more disturbance of road sensitive species such as elk, wolverine, lynx, and gray wolves, and more potential impacts to soils, water quality, fish species, and recreation and more incursions by OHVs and dispersal of invasive plants.</p> <p>The effects of road construction on wildlife, soils, water quality fish species, recreation, and invasive plants are discussed in Chapter 3 of the FEIS.</p>
8-1	<p>The Forest Service did not consider an alternative that did not require the construction of any new permanent or temporary roads.</p> <p>Roads were evaluated by all resource specialists and those felt necessary for future management, including fire suppression and prescribed burning, were closed while excess roads were identified for decommissioning. There is a net reduction in the total miles of open roads in all alternatives. Most new road construction is to remove roads located in riparian areas to reduce future impacts to water quality. Reconstruction is to existing roads to bring them up to current safety standards and reduce environmental impacts. See pages 30-32 for more information.</p>

Commenter	Comment/Response
8-2	<p>Reconstructed roads create new disturbance and increased traffic and have many of the same or similar impacts as new construction in terms of wildlife impacts, soil compaction, and erosion. As a result, the statistical analysis in the draft EIS that presents a road density reduction for each of the proposed alternatives does not paint a complete picture of the impacts road activities would have in the project area.</p> <p>The proposed road activities for each action alternative are analyzed in Chapter 3 of the FEIS for wildlife pages 184, 188, 196-200, 206, 208-210, 217, 218, 227, 236, 237; and for soil compaction and erosion pages 127, 135-138</p>
8-8	<p>Logging activities should not drive restoration activities on the Forest. Similarly, if roads in riparian areas are causing resource damage, the Forest Service should propose through its preferred alternative to decommission or relocate them, regardless of whether other treatments are packaged in a particular alternative to support that action. If roads are identified for decommissioning under any alternative, they should be proposed for decommissioning under every alternative.</p> <p>The restoration activities were not driven by logging, but it is a reality that funding has not been adequate to accomplish all of the restoration activities that we would like to do. By harvesting timber we can then either incorporate some of the restoration activities in the timber sale, or can collect a portion of the timber receipts to have the work done afterwards. If we do not harvest timber in an area, it is unrealistic to expect that the restoration work can be accomplished; therefore the activities are scaled back in some alternatives to reflect this economic reality.</p>
Vegetation	
2-7	<p>... the restriction on harvest of trees larger than 21 inches dbh is in violation of law, unnecessarily restricts management options, wastes economic values, and may perpetrate disease and insect problems.</p> <p>The 21" dbh restriction is contained in the Regional Forester's Forest Plan Amendment #2 which is intended to be an interim measure to prevent the further reduction of old growth trees until the Forest Plan Revisions are complete.</p>
2-8	<p>There is no authority in law that allows the Forest Service widespread authority to set artificial harvesting restrictions. (no harvest of 21 inch trees)</p> <p>See response to 2-7.</p>
2-9	<p>Many existing stands are currently overstocked with trees larger than 21" dbh and exceed any wildlife or diversity needs. These stands will continue in poor forest health if the current drought stress and competition from smaller trees continue. Some of these trees are diseased and in a stressed condition. Many of these trees are dying from insect attack.</p> <p>Most of the general forest lands available for management actions in the Galena project area were cut over during the railroad era and contain few old growth trees. The thinning activities prescribed take place primarily in second growth stands. In the stands where old growth trees exist thinning the smaller trees from around them will increase their chances for survival. Due to past partial cutting in these stands there is little competition between the larger trees.</p>
2-11	Salvage of dead and dying trees should be analyzed. It is the Congressional intent as

Commenter	Comment/Response
	<p>stated in the Forest and Rangeland Renewable Resources Planning Act...Sec 6(m)(1) and Sec 13(b): “That these standards shall not preclude the Secretary from salvage or sanitation harvesting of timber stands which are substantially damaged by fire, wind throw or other catastrophe, or which are in imminent danger from insect or disease attack.”</p> <p>Areas of commercially viable salvage are currently unknown, since NEPA is to be project location and size specific, a “programmatic plan” cannot be evaluated for its potential effects on the environment. If substantial mortality occurs a decision will be made at that time to prepare a NEPA review of the salvage proposal.</p>
4-1	<p>We urge the FS to find the right mosaic/mix of treated and untreated patches within these treatment areas, so that benefits of both thinning (increased vigor) and not thinning (recruitment of snags and dead wood over time) can be realized.</p> <p>The mechanical treatment units were planned jointly by the wildlife biologist, silviculturist, and fuels specialist to integrate concerns about wildlife habitat retention and creation, snags, large scale intense fires, and forest health issues.</p>
4-2	<p>We urge the FS to avoid commercial logging in uninventoried roadless areas larger than 1,000 acres as shown in the map below and included in our scoping comments.</p> <p>The block over 1000 acres is located west of Deerhorn Creek and the portion planned only in Alt 4 for treatment was railroad logged and presently contains several Forest Service system roads. The portion west of the planned treatments was railroad logged but does not contain any current roads and will not be commercially logged with this project.</p>
4-3	<p>Please protect all old trees regardless of size. Small older trees can be identified by various external characteristics and they are ecologically valuable and should be retained.</p> <p>The silviculture prescription and marking guides allow for retention of small old trees that are obviously older than the second growth trees that are common in the harvest areas.</p>
4-4	<p>We urge the FS to consider dropping areas that require extensive road building and rely on non-commercial thinning, prescribed fire, and natural processes to manage those inaccessible areas.</p> <p>Most of the road building is to move roads out of riparian areas to reduce impacts to streams and aquatic resources. The new road crossing Deerhorn Ck in Alt. 4 is to link up an existing road system that is currently cut off due to closing a ford across the Middle Fork to protect the stream. Areas that are currently without roads, like the Little Butte drainage, will be managed as recommended by this comment.</p>
5-2	<p>We ask you to direct trees requiring removal along skidding, constructed roads, and other areas of ground disturbance to be harvested with attached root wads and be used for habitat enhancement opportunities. We also encourage defect trees in forest stands in need of thinning to be utilized for instream habitat opportunities.</p> <p>This idea will be considered for trees needing to be removed for road construction.</p>
8-12	<p>Commercial thinning is not an appropriate tool for reducing fire risk in these (mixed conifer) stands and this practice will not help to mimic natural fire-regime cycles. The</p>

Commenter	Comment/Response
	<p>DEIS does not contain sufficient information about the silvicultural makeup (species, age, moisture content, complexity of stands) or elevation of the units in the project area to allow for an assessment of whether the proposed harvest activities are appropriate or useful in achieving the projects stated purpose.</p> <p>Over 90% of thinning and other commercial and non-commercial mechanical cutting treatments are in the hot dry and warm dry biophysical environments, which historically were primarily low intensity underburns. The cool moist biophysical environment which contains most of the rest of the mechanical treatments typically burned in a mosaic of underburning, partial mortality, and near total mortality with patch sizes for each intensity level from 2 to 20 acres. The treatments are meant to replicate this mosaic, which has been lost due to high grade logging and fire suppression.</p>
Fuels	
1-25	<p>We are opposed to prescribed burning of Inventoried Roadless Areas and Potential Wilderness Areas, as these areas tend to be higher elevation mixed conifer areas naturally subject to mixed to high severity fires and there is a need to leave some areas of the Forest unmanaged and at higher densities for wildlife habitat needs and research control studies.</p> <p>Portions of the IRA scheduled for burning are within the warm dry/hot dry biophysical environment that would have had low to mixed severity wildfires. The intent is not to change stand structure but reduce ground fuel and ladder fuel to reduce the potential for large stand replacing wildfire and create a defensible space for firefighting resources.</p>
1-69	<p>Underburning should be only in the warm/dry forest types as frequent burning and open stands would not be natural in cooler, moister mixed conifer.</p> <p>See response to 1-47</p>
1-70	<p>Any spring underburning should only be done prior to reproductive season, ideally before the last snow melt, so as not to harm migrating bird and woodpecker nesting, game animals in burrows, and so as not to deplete soil moisture needed for the onset of the dry season.</p> <p>Successful underburns need to be implemented when fuel conditions (fuel moistures) are within ranges that allow for desired fuels reduction objectives to be accomplished. The project includes design criteria (pages 37 and 38) to mitigate the effects of burning to nesting birds. See the Wildlife section in Chapter 3 for a discussion of impacts to individual species.</p>
1-71	<p>When would wildfire be allowed to burn? This is always promised as a goal, but never allowed.</p> <p>At this time the current Forest plan does not allow for wildfire to burn without full suppression response. It is a desire in the future to have enough of the forest lands in a condition to allow fire to play its natural role on the landscape and have enough area covered by NEPA to allow for natural fires.</p>
1-72	<p>No aerial ignition-this increases the risk of crown fire.</p>

Commenter	Comment/Response
	Aerial ignition would only occur after stands have been treated to reduce ground and canopy fuels through thinning, piling, and hand lightning underburning. This will facilitate a low intensity low severity under burn if aerial ignition is used in the future.
1-74	We support no burning in DOGs and oppose burning in IRAs.
	Areas identified in the IRA for burning were done through an interdisciplinary team process. It was decided to reintroduce fire back into this area to begin mimicking the natural fires that would have played a role on the landscape with a mix of low /mixed severity fire and not stand replacement that is more likely to occur if fuel conditions are not changed within the IRA.
Soils	
1-97	Soils Design Criteria # 4: Drop steep areas in sale units proposed for commercial logging in units 332 & 432.
	Heavy equipment is restricted from operating on highly erodible parts of all units. It is not necessary to drop all steep areas in order to meet the Forest Plan standard, because not all steep areas are highly erodible.
1-98	Soils Design Criteria #6: Concerns re: reasons for restriction on these units-avoid marshy and seasonally moist areas.
	The reason for the restriction (to keep expected impacts below 17%) was added to the Design Criteria. If any marshy areas are found in units, they will be avoided, because marshy areas are included in Riparian Habitat Conservation Areas. Seasonally moist areas that are not wetlands are protected by Soil Design Criteria # 11 "No skidding on wet soil if ruts 6 inches or deeper would be 50 feet or longer."
1-99	Soils Design Criteria #7: Avoid creating new skid trails.
	It is not necessary to avoid creating new skid trails in order to meet Forest Plan standards.
1-100	Soils Design Criteria #10: Eliminate all skidding on slopes greater than 35%.
	It is not necessary to eliminate all skidding on slopes greater than 35% in order to meet Forest Plan standards. Forest Wide Standard 101 permits skidding on slopes greater than 35% if cable or aerial systems are not feasible.
1-101	Soils Design Criteria #11: Eliminate all skidding on wet soil.
	It is not necessary to eliminate all skidding on wet soil in order to meet Forest Plan standards.
1-105	Can the use of skidders be avoided entirely? If so this would be preferable. Use only "light on the land" equipment as a requirement in any timber sale or other contracts for the sale.
	It is not necessary to avoid use of skidders in order to meet Forest Plan standards.
1-106	Reuse existing landings only-no new landing clearings.
	It is not necessary to avoid clearing and using new landings in order to meet Forest Plan standards.

Commenter	Comment/Response
1-107	<p>Paragraph 5: This does not consider cumulative loss of biomass and soil nutrients from past & ongoing logging.</p> <p>The soil Existing Condition section was corrected to acknowledge this loss.</p>
1-108	<p>Drop units that require special design criteria to protect soils.</p> <p>It is not necessary to drop units that require special design criteria in order to meet Forest Plan standards.</p>
1-109	<p>What was the method used to determine existing detrimental impacts? Somehow such analysis almost always manages to avoid a detrimental level of impacts after logging that exceeds Forest Plan Standards of 20...</p> <p>The method used to determine existing detrimental impacts is described in the soil Analysis Methods section. With regard to avoiding detrimental impacts larger than 20% (or 17% as described in the soil Regulatory Framework section), the design criteria (including special design criteria) are prescribed so that impacts from this and future operations avoid detrimental impacts larger than 17%.</p>
1-110	<p>How do you define "negligible?" Impacts from livestock grazing in sale units is obvious. See survey sheets. (This is referring to the "Cumulative Effects of Soils" section of the DEIS on Pg 33, Ch 3)</p> <p>One dictionary defines negligible as that which "may be neglected or disregarded." Livestock grazing in sale units detrimentally impacts well under 1% of the soil.</p>
1-111	<p>Why did we find mining claims in Galena sale units then? See photos. (comment on active mining claims in ch 3, pg 33, paragraph 1)</p> <p>The EIS was corrected to read "Any future cumulative effects from mining claims would be disclosed in the NEPA documents associated with those claims."</p>
1-112	<p>Once again, discussion of (mostly herbicide) control of invasive plants ignores toxic herbicide poisoning impacts to soils.</p> <p>The upcoming Invasive Plants EIS will disclose the direct, indirect, and cumulative effects of herbicides to soils. There are no herbicide treatments proposed for the Galena Project.</p>
Hydrology	
1-3	<p>You don't meet the goal of reducing sediment reaching streams and reducing impacts to aquatic species and wildlife not met by constructing new roads and reconstructing closed roads put to bed for good reasons and having a net increase in roads.</p> <p>The sideboards applied to the watershed effects analysis are described in the FEIS pages 132 and 133; and in more detail in the Specialist's Report, incorporated by reference. Direct and indirect effects related to roads and sediment are discussed in the FEIS on pages 135-138. Cumulative effects, including those related to sediment are discussed on pages 139 and 140.</p>
1-13	<p>(Road construction and reconstruction) likely increase sedimentation of streams</p> <p>Direct and indirect effects related to roads and sediment are discussed in the FEIS on pages 135-138. Cumulative effects, including those related to sediment are discussed on</p>

Commenter	Comment/Response
	pages 139and 140.
1-32	<p>..such extensive ground disturbance from a variety of proposed management across such a large area with steep slopes, erosive soils, already badly damaged riparian areas and habitat for bull trout, steelhead, and downstream salmon will inevitably cause cumulative degradation of water quality for fish in violation of the Clean Water Act.</p> <p>Legacy effects, direct and indirect effects from Proposed Activities, and Cumulative Effects are discussed in the FEIS pages 136-140.</p>
1-113	<p>Paragraph 2: This is in direct contradiction to the statement on pg 40 that "effects of harvest activities are expected to remain within units".</p> <p>The discussion in the DEIS p. 3-40, paragraph 6 was clarified to make it consistent with that in the FEIS.</p>
1-114	<p>Paragraph 2: In which streams could increased sedimentation be expected to occur and how much sedimentation?</p> <p>The sideboards applied to the watershed effects analysis are described in the FEIS pages 132 and 133; and in more detail in the Specialist's Report. Direct and indirect effects related to sediment are discussed in the DEIS on pages 135-138. Cumulative effects, including those related to sediment are discussed on pages 139and 140.</p>
1-115	<p>Restored productivity for 10 years is a long term impact from "temporary roads".</p> <p>See Soils Responses.</p>
1-116	<p>Paragraph 1: Fallacious reasoning: Yet the proportion is increased only because the total acreage of disturbance is smaller!</p> <p>Direct and indirect effects of changes, including those related to proportion, included in Alternative 3 are discussed on page 137 in the FEIS.</p>
1-117	<p>6 miles of road relocation out of RHCAs is still a good idea and should be included in Alt. 3.</p> <p>The issues to the Proposed Action and rationale for the alternatives are discussed in FEIS Chapters 1 and 2.</p>
1-118	<p>Replacement of fords w/culverts should also be considered for Alt. 3</p> <p>The issues to the Proposed Action and rationale for the alternatives are discussed in FEIS Chapters 1 and 2.</p>
1-119	<p>What are the parameters of "moderate" watershed hazard and the actual effects of "moderate" hazard.</p> <p>Definitions and descriptions of hazard levels were added to the discussion in the FEIS, on pages 133-134.</p>
1-120	<p>Alt 4 is an unacceptable level of impacts in general.</p> <p>Direct and indirect effects of the activities included in Alternative 4 on the watershed, watershed functioning and water quality and yield are summarized on pages 138 and 139 of the FEIS. Cumulative Effects are described on page 140 of the FESIS and discussed in further detail in the Specialist's Report.</p>

Commenter	Comment/Response
1-121	<p>Paragraph 1: This is excessive soil disturbance at designated stream crossings.</p> <p>Direct and indirect effects of soil disturbance at proposed stream crossings are discussed on page 138 of the FEIS; cumulative effects are discussed on pages 139-140.</p>
1-122	<p>Shade reduction is not acceptable-especially if on a 303(d) listed stream segment.</p> <p>Direct and indirect effects of shade reduction are discussed on DEIS pp. 3-42, paragraph 3; the indirect effects of shade reduction on stream temperature are discussed in the same paragraph. A similar discussion was added to Alternative 2 effects discussion on DEIS p. 3-40, paragraph 2. In addition the 303(d) List status of the streams where activities are proposed was clarified at both locations in Chapter 3.</p>
1-123	<p>Flawed cumulative effects analysis (on pg 44, Ch 3).</p> <p>Cumulative effects are discussed on pages 138 and 140 of the FEIS.</p>
1-124	<p>See earlier contradiction that adverse effects could go beyond unit boundaries. (DEIS p. 39)</p> <p>The discussion on FEIS page 135 was clarified to make it consistent with that on FEIS page 135 in response to Comment 1-113. Comment 1-124 is excerpted from FEIS page 139 which in the whole is consistent with the clarified response to Comment 1-113.</p> <p>The discussion on FEIS page 135 was clarified.</p>
1-125	<p>Additional flows and sediment reaching the MFJD River need to be quantified and are unacceptable since the MFJD is 303(d) & is salmonid and bull trout habitat.</p> <p>The sideboards applied to the watershed effects analysis are described in the FEIS on pages 132-134 and in more detail in the Specialist's Report, incorporated by reference. Direct and indirect effects related to sediment are discussed in the FEIS pages 135-138. Cumulative effects, including those related to sediment are discussed on pages 139 and 140.</p>
5-1	<p>Watershed scale-size projects such as the Galena Project can influence water quality in this river (Middle Fork John Day).</p> <p>Cumulative effects of the proposed activities are discussed on pages 139 and 140 of the FEIS.</p>
9-1	<p>Water users must have legal access to water such as connection to a municipal system, or have a permit or water right certificate from the Water Resources Department to use water from any source- whether it is underground, or from lakes or streams. Generally speaking, landowners with water flowing past, through, or under their property do not automatically have the right to use that water without a permit from the Department.</p> <p>The proposed activities would be consistent with applicable State and Federal policies, laws, and regulations with regard to water diversion and water use.</p>
Aquatics	
1-29	<p>We are very concerned about potential impacts to bull trout and/or mid-Columbia River steelhead trout from roadwork, new road construction, and sediment contributing ground activities in or near RHCAs and riparian zones, including burning, PCT, CT, and</p>

Commenter	Comment/Response
	fire line construction.
	Design Criteria for aquatics listed on pages 40-45 of the FEIS will be implemented and are designed to minimize impacts of all project activities for each action alternative. Direct, indirect, and cumulative impacts to bull trout and mid-Columbia River steelhead are disclosed in the Aquatics section beginning on page 151 of the FEIS.
1-30	<p>concerned about potential downstream impacts to Chinook Salmon through increased stream temperature or sedimentation.</p> <p>Mid Columbia River (MCR) Chinook salmon are no longer a Region 6 sensitive species; however Essential Fish Habitat (EFH) for spring Chinook salmon has been designated by the National Marine Fisheries Service in the aquatic analysis area within the MFJD River. Direct, indirect, and cumulative impacts to EFH for MCR Chinook Salmon are disclosed and discussed in the Aquatics section pages 162-163 of the FEIS.</p>
1-126	<p>Analysis of riparian habitat conditions and disclosure of related Forest Plan violations presents a picture of widespread aquatic degradation threatening listed fish species and overall water quality and stream functions, amply supporting our concern: ie impacts from extensive sediment contributing activities and any reduction in stream shading or removal of large wood in RHCAs.</p> <p>Project activities are not expected to contribute to habitat degradation from sediment or the reduction of shade. There would be no harvest of timber within RHCAs and the effects of removing trees for safety concerns, road construction and reconstruction, and aspen regeneration would have minimal impact to stream shading or the recruitment of large wood in streams (pages 148-149). The DEIS discloses the direct, indirect, cumulative effects of sediment, shading, and large wood on listed fish species and their habitat the Aquatics section (pages 139-169)</p>
1-128	<p>Water withdrawals from creeks are not quantified with no substantiation of the conclusion that there would be no impacts to all six habitat elements.</p> <p>Water withdrawal for dust abatement during haul activities would occur only at designated water drafting sources and NMFS guidelines would be followed to prevent potential harm to fish. Drafting can only occur as long as there is an adequate supply of water for fish and withdrawal. Criteria for water drafting in Chapter 2 of the DEIS, Appendix A of the Aquatics Specialist Report, and Appendix F of the DEIS will be followed minimizing the effects of water withdrawals for road maintenance and dust abatement. The analysis of effects of proposed activities shows that any measureable change to any of the six habitat elements from water drafting is unlikely. For a full discussion of water withdrawal see pages 155-156 of the FEIS.</p>
1-129	<p>We are concerned re: road maintenance & reconstruction impacts to water quality at the stream crossing on Windlass Creek & Davis Creek.</p> <p>Proposed road maintenance and reconstruction would likely result in creation and transport of a small amount of fine sediment to stream channels. Design Criteria for road maintenance and reconstruction would be implemented during these activities, and are expected to limit sediment delivery to stream channels to negligible amounts (see page 149; FEIS). Road reconstruction and maintenance may even decrease chronic sedimentation in some locations. Ultimately, proposed maintenance, reconstruction and</p>

Commenter	Comment/Response
	culvert replacement is intended to minimize the impacts to fish and water quality of the existing road system by correcting any erosion problems associated with roads used for commercial harvesting and haul. (See pages 147-150, 248; FEIS)
1-130	<p>"Short Term" and the specific impacts of "Likely to Adversely Affect" are not quantified or sufficiently qualified, leaving doubt as to whether the cumulative effect of this project & other impacts could threaten steelhead viability.</p> <p>The Cumulative Effects discussion for all aquatic species (pages 166-168) defines short term as being 1-3 years and negligible as "non-measurable". ESA section 7 consultation for the Galena Project has been completed with the NMFS and FWS. The Malheur National Forest determined that the Galena Project is Likely to Adversely Affect MCR Steelhead and Columbia River Bull Trout; Biological Opinions have been received from both agencies documenting their finding of No Jeopardy to either species.</p>
1-131	<p>It is not clear whether proposed design criteria would sufficiently reduce the probability and magnitude of risk to steelhead from culvert installation to prevent significant impacts.</p> <p>Culvert installation will follow a suite of conservation measures identified in the ARBO that are intended to reduce the short term effects caused by construction. The ARBO conservation measures and design criteria minimize the effects of culvert installation on aquatic species and ensure that new culverts do not constrain stream channels or inhibit fish passage. ESA section 7 consultation for the Galena Project has been completed with NMFS. The Malheur National Forest determined that the Galena Project is Likely to Adversely Affect MCR Steelhead, and a Biological Opinion has been received documenting their finding of No Jeopardy to MCR Steelhead. The effects of culvert replacement on MCR steelhead are discussed in the Aquatics section of the FEIS.</p>
1-132	<p>There is no quantification of the amount of sediment that would be added or even of the time of duration, so no justification of the conclusion that the action alts. Would have no adverse effects of EFH for salmon.</p> <p>Additional analysis conducted after publication of the FEIS has led the Malheur National Forest to change the action alternatives determination of effect for Chinook Salmon EFH from No Adverse Effect to May Adversely Affect. See further analysis in aquatics effects analysis in Chapter 3.</p>
1-133	<p>Population studies need to be done in the project area to determine population status and viability thresholds for Columbia spotted frogs, the western ridged mussel, short faced lanx and other MIS and rare species. There is no way of knowing if these species would survive the "short term" impacts predicted to experience the long term benefits without such studies. The NFMF requires that the FS protect the viability of all native vertebrate species. This includes the Columbia spotted frog and project area fish species.</p> <p>Species viability assessments and accurate population viability assessments require intensive species-specific monitoring not required by the Malheur LRMP. The Malheur National Forest LRMP and Regional guidance directs the use of habitat as a proxy for species viability for most species.</p>
1-134	<p>Riparian associated roads should not be used for hauling.</p> <p>Under the action alternatives the use of riparian roads used for haul would result in increases in fine sediment during use. However, it is not expected that increases from</p>

Commenter	Comment/Response
	haul activity will result in measureable amounts of fine sediment to stream channels. See FEIS, page 149.
1-135	There is no mention of the impact of toxic herbicides proposed for use to aquatic habitats and species. No herbicide use is proposed for this project.
1-136	Terms such as "negligible" and "small" remain unquantified & impossible to relate to a specific degree of impact to aquatic species. See response to 1-130.
1-137	What would be the specific impacts from the predicted "relatively small" increase in total sediment to steelhead, bull, and redband trout, spring Chinook salmon, Columbia spotted frog, western ridged mussel, and short faced lanx? Without this level of specific detail, a MIIH determination may not be accurate-cumulative impacts could threaten the species. Direct, indirect, and cumulative impacts of the project activities on aquatic species and their habitat are discussed in the Aquatics Section of the FEIS (pages 145-150). In addition, rationale for effects determinations for all aquatic species is documented as well (pages 152-166 of the FEIS)
1-138	How is it assumed that increased sediment would be "non-measurable"? Additional analysis conducted after publication of the DEIS has led the Malheur National Forest clarify that measureable effects to the Embeddedness and Fine Sediment habitat element are anticipated. Please see the clarified analysis on in the aquatic habitat section in Chapter 3 of the FEIS.
1-139	This is a very biased cumulative effects analysis for aquatics since alt 1 (no action) is considered less degrading to aquatic habitat than alts 2,3, & 4 despite the road construction, reconstruction, opening of closed roads, riparian road decommissioning, and culvert replacement, and prescribed burning and aspen restoration impacts to aquatic habitat, all of which are not thoroughly analyzed and with road construction, reconstruction, and opening of closed roads impacts ignored. Alt 1 is erroneously equated with a stand replacing wildfire although this is not certain and serves to bias the analysis against No Action even though fish populations are known to recover from wildfire effects, which is not discussed. Additional analysis of direct, indirect, and cumulative effects of the proposed action has been provided in the FEIS aquatic habitat section, and in the aquatic specialist report in the project record which pertain to this comment.
1-248	The four main streams flowing off the north side of Dixie Butte: Deerhorn, Little Butte, Butte (Sulphur) and Ruby (main fork) are the major source of cold (because of the heavily canopied north aspect slope) clear water to the Middle Fork John Day River on this (south) side of the upper River. The risk to the River of management activities such as road building, logging, grazing, could be disastrous. The aquatics analysis determined that project activities would not likely result in a measureable increase in stream temperatures

Commenter	Comment/Response
Botany	
1-141	<p>Sensitive plant surveys for the project area are outdated (11-13 years old!) and do not included species listed as sensitive since 1999. Remote techniques will not confirm sensitive plant species presence. This could bias the whole botany analysis.</p> <p>Remote techniques were utilized to identify potential sites for sensitive plant species within the project area. Design criteria 1 and 4 for Botany, found on page 46 of the FEIS prohibits activities that would impact sensitive plants in these habitats. In the field season between the Draft and Final EIS for this project 1,564 acres were surveyed in 14 different areas within the project boundaries. Surveys focused on the areas with the highest probability of containing sensitive plant habitat, both within and outside of proposed units. The results of the survey resulted in the detection of one new sensitive plant population: Northern twayblade (<i>Listera borealis</i>) is a small, inconspicuous, rare orchid species that was found in a forested wetland habitat at the headwaters of a Vinegar Creek tributary. The proposed activities will have no impact to the population because it is located over 1 mile from the nearest proposed treatment unit.</p>
1-142	<p>This would violate regional and Forest Service manual direction. (This statement is referring to paragraph 6, pg 76 that states commercial and pre-commercial thinning, road activities, and aspen treatments would impact sensitive plant species.)</p> <p>Unfortunately, the DEIS used the word “would impact” sensitive species within forest and woodland areas when the term “may impact individuals or habitat” should have been used. Table 25 on page 173 of the FEIS records the potential impacts to sensitive species within forest and woodland areas. The Forest Botanist records that activities from the project may impact individuals or habitat, but will not likely contribute towards federal listing or cause loss of viability to populations or species.</p>
1-143	<p>There is no way of knowing whether these 3 Forest sensitive plant species are present in sale units or what their population status is without recent sensitive plant surveys. Therefore the project could potentially contribute to loss of species viability or to up listing.</p> <p>The design criteria for the project protects the potential habitat for the three species by prohibiting certain activities within these areas so should protect the plants themselves if they exist within the project area. Subsequent surveys performed in 2011 did not locate any of the three species in question.</p>
1-144	<p>Without recent surveys there is no way to ensure continued viability post project for species present in the margins of riparian areas-Idaho sedge, northern twayblade, and moonwort species.</p> <p>There are no activities proposed within RHCA's so there would be no impacts to riparian species with any of the action alternatives (see FEIS, page 171). Additionally, the Galena Project area has marginal habitat at best for Idaho sedge and the habitat prediction model predicts minimal habitat and low probability of presence within the project area.</p>
1-145	<p>We are concerned by potential impacts of aspen restoration activities to <i>Phalacea minutissima</i>. We are also concerned by potential project impact to <i>Thelypodium eueosmum</i>, <i>Carex cordillerana</i>, and <i>Cypripedium fasciculatum</i>. (see table 15, page 78)</p>

Commenter	Comment/Response																									
	Potential impacts to sensitive plants are disclosed in the FEIS in pages 169-175.																									
1-146	<p>Again, there is no discussion of the cumulative impact of planned toxic herbicide use to sensitive native plants even though herbicides are designed to kill plants and could be used in sensitive plant habitat-especially since sensitive plant surveys are out of date so it is not known where sensitive plants exist in the project area.</p> <p>There are no herbicide treatments proposed for this project.</p>																									
Wildlife																										
1-12	<p>Road construction and reconstruction is not consistent with reducing elk disturbance.</p> <p>The analysis and effects of road construction and reconstruction to elk are located in: Chapter 3 page 196 for Alternative 2, page 198 for Alternative 3, and page 199 for Alternative 4</p>																									
1-16	<p>The proposed action violates the Forest Plan standard for reduced road densities.</p> <p>See Comment 1-12</p>																									
1-18	<p>providing sustainable habitat at historical levels for wildlife species that prefer OFSS PP dominant forest stands means focusing on lower elevation, drier PP dominant forest stands, not higher, cooler, moister mixed conifer where it was probably never OFSS except on some mid-elevation southern exposures.</p> <p>Mechanical cutting treatments are focused primarily in the hot dry and warm dry biophysical environments</p> <table><tr><th></th><th>Alternative 1</th><th>Alternative 2</th><th>Alternative 3</th><th>Alternative 4</th></tr><tr><td>Acres Mechanically Treated</td><td>0 Acres</td><td>8339 Acres</td><td>6167 Acres</td><td>9778 Acres</td></tr><tr><td>Acres of Hot Dry Treated</td><td>0 Acres</td><td>2683 Acres</td><td>1676 Acres</td><td>3098 Acres</td></tr><tr><td>Acres of Warm Moist Treated</td><td>0 Acres</td><td>4502 Acres</td><td>3682 Acres</td><td>5120 Acres</td></tr><tr><td>Acres of Cool Moist Treated</td><td>0 Acres</td><td>611 Acres</td><td>466 Acres</td><td>930 Acres</td></tr></table>		Alternative 1	Alternative 2	Alternative 3	Alternative 4	Acres Mechanically Treated	0 Acres	8339 Acres	6167 Acres	9778 Acres	Acres of Hot Dry Treated	0 Acres	2683 Acres	1676 Acres	3098 Acres	Acres of Warm Moist Treated	0 Acres	4502 Acres	3682 Acres	5120 Acres	Acres of Cool Moist Treated	0 Acres	611 Acres	466 Acres	930 Acres
	Alternative 1	Alternative 2	Alternative 3	Alternative 4																						
Acres Mechanically Treated	0 Acres	8339 Acres	6167 Acres	9778 Acres																						
Acres of Hot Dry Treated	0 Acres	2683 Acres	1676 Acres	3098 Acres																						
Acres of Warm Moist Treated	0 Acres	4502 Acres	3682 Acres	5120 Acres																						
Acres of Cool Moist Treated	0 Acres	611 Acres	466 Acres	930 Acres																						
1-20	<p>The Malheur and Umatilla National Forests have been cumulatively eliminating satisfactory cover for elk. We are strongly opposed to continued satisfactory cover reduction-specifically in this case in the Vinegar Creek subwatershed and in big game winter range within the Little Boulder/Deerhorn Creek subwatershed.</p> <p>In a 2003 letter to the Eastside Forests, the Regional Office provided direction encouraging Forests to use site-specific Forest Plan amendments to move the landscape towards HRV (USDA FS June 11, 2003). Harvest treatments would occur primarily in warm dry biophysical environments. These stands are considered outside HRV, i.e.,</p>																									

Commenter	Comment/Response
	<p>overstocked and likely unsustainable given the high risk of uncharacteristically severe fire and insect epidemics.</p> <p>Historical conditions and fire return intervals favored large blocks of trees with canopy closure too low to support satisfactory or marginal cover. Today, cover requirements are being met on many ponderosa pine sites; however, stands are overstocked and at high risk to bark beetle and severe wildfires. Cover levels may not be sustainable. Tree treatment that most effectively reduces beetle and fire risk, tree thinning, also reduces the effectiveness of a stand as cover.</p> <p>Stands exhibiting satisfactory cover were chosen for treatment to meet the purpose and need of the project. As a result, other management activities will be implemented to provide escapement and increase elk security. These management activities include but are not limited to: managing for a close juxtaposition of openings with cover, decreasing open road densities, and providing horizontal hiding cover by retaining non-thinned patches of forest trees throughout the project area. In addition, total cover in both sub watersheds would still exceed Forest Plan Standards.</p> <p>Also see pages 24 and 26-27</p>
1-35	<p>The extensive fuel reduction proposed could result in a taking of migratory birds in violation of the MBTA.</p> <p>The FEIS discloses possible take of neotropical migratory birds in relation to proposed alternatives (Thinning and Prescribed Fire, pages 222-223). Although a small number of avian species may benefit from high intensity wildfires, a greater number of neotropical migratory birds would experience detrimental effects. Project design measures, such as variable density spacing, and breeding and seasonal restrictions, should help offset impacts to neotropical migratory birds.</p>
1-48	<p>The Forest Service should have analyzed an alternative that would not remove satisfactory cover in particular and hold to Forest Plan standards for cover.</p> <p>Similar to Comment 1-20, See Response to 1-20. Also see pages 26-27.</p>
1-50	<p>300 Acres for each DOG is insufficient for meeting the needs of nesting pairs of pileated woodpeckers (see Evelyn Bull's study from Starkey) and goshawks.</p> <p>Addressed in Alternative 3. See pages 205-206.</p>
1-51	<p>Were there no suitable new DOG old growth habitat areas within the project area? There needs to be more protected suitable habitat for pileated woodpeckers, No. goshawks, and other OG dependent species.</p> <p>Each action alternative proposes additional acreages to the DOG/ROG/PWFA network (see pages 204-212). Appendix C, Maps 15 and 16 display existing old growth and amendments to DOGs for all action alternatives. Three northern goshawk PFAs (Post-Fledging Areas), which meet Forest Plan standards, are already designated within the project area.</p>
1-52	<p>We support the increase in DOG and ROG acreage, but more should be identified for DOGs.</p> <p>Additional acreages already exceed the Land and Resource Management Plan's minimum requirements for Management Area 13 for alternatives 2 and 4 by 18%, and</p>

Commenter	Comment/Response
-----------	------------------

50% for alternative 3.

1-73

Underburning is antithetical to meeting the needs of pileated woodpecker and should not be done in PWFAs or ROGs in moister, mixed conifer.

For the analysis of the effects to pileated woodpecker from underburning (prescribed burn), see pages 204-212. In addition, analysis for each action alternative concludes that, in the short to mid-term (1-25 years), thinning and prescribed fire would have negative effects to pileated woodpecker and pine marten by reducing stand density and cover, thus reducing potential nesting and denning habitat. Repetitive underburn entries into an area would reduce foraging habitat for woodpeckers and pine marten. However, in the long term (25+ years) stand structure would better mimic historical sustainable conditions and may be considered beneficial to old growth dependent species. The present risk of high-intensity wildfire is considered to pose a greater risk to existing ecosystems as large, high severity fires would remove entire stands and would not meet the needs of pileated woodpecker. Removing accumulated fuel loads and reducing the stand and crown density would decrease the risk of a large-scale fire and benefit other wildlife species, i.e. white-headed woodpecker.

1-76

All this mileage of new and "temporary" road construction and reconstruction stands in contradiction to the FS goals of reducing road density, as does opening so many miles of closed roads.

Open road densities after implementation of all action alternatives would be at or below standards set by the Forest Plan and be closer to the desired open road densities. See the following table taken from the Wildlife Specialist Report and Table 30 in the FEIS.

Subwatershed	HEc	HEs	Hef	HEr	HEcsfr (HEI)	%S	%M	% Total Cover	Open Road Density (miles/mi e ²)
Summer Range									
<i>Forest Plan Standard</i>	0.3	0.3	N/A	0.4	0.4	12	5	20	3.2 (1.5*)
Vinegar Creek									
Alternative 1	0.59	0.57	N/A	0.49	0.55	8	38	47	2.0
Alternative 2	0.61	0.57	N/A	0.52	0.56	7	27	34	1.6
Alternative 3	0.60	0.59	N/A	0.51	0.57	8	29	37	1.7
Alternative 4	0.61	0.56	N/A	0.52	0.56	7	25	32	1.6
L. Boulder/Deerhorn									
Alternative 1	0.65	0.43	N/A	0.58	0.54	21	48	69	1.6
Alternative 2	0.67	0.47	N/A	0.60	0.58	20	40	60	1.3
Alternative 3	0.66	0.47	N/A	0.60	0.57	20	44	64	1.2
Alternative 4	0.67	0.52	N/A	0.60	0.59	19	36	55	1.3
Winter Range									
<i>Forest Plan Standard</i>	0.4	0.3	0.3	0.5	0.5	10	10	25	2.2 (1.0*)
L. Boulder/Deerhorn									
Alternative 1	0.57	0.69	0.50	0.39	0.53	5	30	35	3.0

Commenter	Comment/Response
	<p>Alternatives 2, 3, & 4 0.58 0.68 0.50 0.52 0.57 5 25 30 1.6</p> <hr/> <p><i>HEI = Habitat Effectiveness Index</i></p> <p><i>HEc = habitat effectiveness derived from the quality of cover</i></p> <p><i>HEs = habitat effectiveness derived from the size and spacing of cover</i></p> <p><i>HEf = habitat effectiveness derived from the quantity and quality of forage</i></p> <p><i>HEr = habitat effectiveness derived from the density or roads open to vehicular traffic</i></p> <p><i>%S = Satisfactory Cover, %M = Marginal Cover, %Total Cover = %S + %M</i></p> <p><i>N/A – Not Applicable. HEf is not used for summer range</i></p> <p><i>*Desired open road density based on LRMP Record of Decision</i></p>
1-79	<p>Any new or "temporary" road construction or reconstruction will increase OHV use and the dispersal and introduction of invasive plants as well as disrupt and disturb wildlife.</p> <p>Pages 183-189, 197-200, 204-212, 217-220, 222-229, 233-238 analyze the effects of road construction and reconstruction on wildlife. Pages 272-273 analyze the effects of road construction and reconstruction on the dispersal and introduction of invasive plants.</p>
1-80	<p>No girdling of trees over 21"dbh! Remember that the biodiversity in aspen areas is at least tripled by the presence of large conifers.</p> <p>Based on the most current research, species richness, particularly with avian species, is typically greater in more mature aspen stands versus younger stands and mixed-conifer aspen stands (Swanson et al. 2010). Under the Malheur Forest Plan standard and guidelines (Chapter IV, item #57), aspen stands are to be maintained and enhanced using conifer cutting and prescribed fire as the principal means of regeneration, where appropriate. Aspen is a shade-intolerant, early seral hardwood that regenerates by seed dispersal and by sprouting suckers from roots, a process especially vigorous after a disturbance such as fire. The regeneration of stands is largely dependent on the proliferation of suckers. Restoration treatments that will promote suckering include; girdling or felling, removing encroaching conifers, and using prescribed fire to underburn stands. Please reference Swanson et al. (2010) for further information (page 310)</p>
1-82	<p>Consider only thinning encroaching conifers up to 100 feet from aspen on the south side and limiting thinning to 10-12"dbh except where the aspen are in upland thinning units.</p> <p>Research indicates that aspen can successfully regenerate when stands receive adequate light. Reducing shade and competition by felling or girdling encroaching conifers releases understory suckers, maximizing their growth. Local experience on the Malheur and Umatilla National Forests shows that fencing and conifer removal are the critical components of successful, long-term stand enhancement. The primary objective is to remove enough of the conifer competition to release the aspen and maximize natural regeneration. Swanson et al. (2010) suggests removing all conifers in aspen stands, except for those that must be retained to meet other management objectives.</p>
1-83	<p>The size of the thinned and fenced areas should depend on site specifics.</p> <p>This is accurate. However, the effects were analyzed based on the most intensive management that may be needed to restore each stand.</p>

Commenter	Comment/Response
1-147	<p>Grey wolves have been increasingly sighted on the Malheur NF and we have seen a wolverine and wolverine tracks in the Emigrant District of the Malheur NF. We have also seen Canada lynx both on the Ochoco NF and private land in Wheeler County. There could be foraging or migrating lynx in higher elevations of the Malheur- especially near roadless areas, as with the project area. There is suitable habitat for lynx in the adjacent Umatilla NF. Again, in the absence of population studies for TES species, presence or absence cannot be determined, and HD/N cannot be guaranteed re: the species not being present in the area.</p> <p>The USFWS has determined that, based on the National Lynx Survey, the Malheur National Forest falls under the designation of “Unoccupied Mapped Lynx Habitat” (USFWS Memo, 2006). No verified sightings have been reported on the Malheur NF.</p> <p>The DEIS states that the Galena project area could be used by gray wolves and wolverines. However, winter track surveys and monitoring using bait stations and remote cameras have not produced documented occupancy. At this time, the above mentioned species are not documented in the project area, although habitat is suspected or near enough to be impacted.</p>
1-148	<p>Wolverines could be present in the Vinegar Hill-Indian Rock Scenic Area and/or Dixie Butte and therefore could be using the project area as foraging habitat as they travel widely.</p> <p>This is discussed in the FEIS, see Distribution, page 179.</p>
1-149	<p>Given nearby suitable Peregrine habitat and sightings (see para 1, pg 85 and last para pg 84), Peregrine falcons could be using parts of the project area for foraging or for nesting at Coyote Bluffs.</p> <p>This is discussed in the FEIS. Peregrine falcons could be using parts of the project area for foraging. However, to date, no confirmed nesting has occurred at Coyote Bluffs.</p>
1-150	<p>Why have there been no assessments of habitat suitability of the 6 acres of wet meadows in the project area for silver-bordered fritillary butterflies? Goldenrod presence is likely and suitable violets possible.</p> <p>Prescribed fire would be the only activity occurring in wet meadow habitat, and Design Criteria Botany #4 will ensure plants in those habitats remain protected.</p>
1-151	<p>No mention of impacts of project to elk, gray wolf prey, through reduction of satisfactory cover.</p> <p>Potential impacts to elk and gray wolf, including reduction of prey species and satisfactory cover, are discussed on pages 185, 196-200.</p>
1-152	<p>There is no mention of potential impacts to gray wolves from the project from increased human disturbance through road re-opening, road construction, road maintenance- potentially long term effects.</p> <p>There are no confirmed gray wolf denning or rendezvous sites documented on the Malheur National Forest. Please see Chapter 3, Roads section, for road impact analyses.</p>
1-153	<p>The inclusion of no trend toward federal listing and no loss of viability for wolverine is not justified by the info. Presented.</p>

Commenter	Comment/Response																		
	There are no confirmed wolverine breeding populations on the Malheur National Forest and, hence, no prediction of possible decrease in population viability or trend toward listing was required.																		
1-154	<p>How is it determined that the Galena timber sale would not fragment habitat for wolverine and not decrease its food supply (re: reduction of satisfactory cover for elk and increased disturbance of elk & wolverine)?</p> <p>On pages 185-186 of the FEIS, California Wolverine section, it states that the greatest impact on wolverines, if present, would be habitat fragmentation and increased human presence associated with activities during implementation.</p> <p>Also See pages 196-200 Elk for project analysis to elk.</p>																		
1-155	<p>Removal of snags as hazard trees and along roads and in landings reduces overall snag habitat for Lewis' woodpecker as does the cutting of live trees up to 20.9"dbh re: future large snags.</p> <p>That is stated on page 186 Lewis's Woodpecker Section. However, open road densities will be reduced making future snags inaccessible to firewood cutting, offsetting the loss of snags determined to be hazard trees. See the following table from page 219.</p> <p>Table 36. Affected acres of snag habitat as a result of closing, decommissioning and constructing roads</p> <table><tr><th colspan="3">Road Activities</th></tr><tr><th>Alternative</th><th>Additional Acres of Snag Habitat Accessible to Firewood Cutting</th><th>Additional Acres of Snag Habitat Inaccessible to Firewood Cutting</th></tr><tr><td>Alternative 1</td><td>0</td><td>0</td></tr><tr><td>Alternative 2</td><td>472</td><td>1,673</td></tr><tr><td>Alternative 3</td><td>0</td><td>1,309</td></tr><tr><td>Alternative 4</td><td>509</td><td>1,673</td></tr></table>	Road Activities			Alternative	Additional Acres of Snag Habitat Accessible to Firewood Cutting	Additional Acres of Snag Habitat Inaccessible to Firewood Cutting	Alternative 1	0	0	Alternative 2	472	1,673	Alternative 3	0	1,309	Alternative 4	509	1,673
Road Activities																			
Alternative	Additional Acres of Snag Habitat Accessible to Firewood Cutting	Additional Acres of Snag Habitat Inaccessible to Firewood Cutting																	
Alternative 1	0	0																	
Alternative 2	472	1,673																	
Alternative 3	0	1,309																	
Alternative 4	509	1,673																	
	Future large snags, green tree replacements, will be left according to the Projects Design Criteria (See page 37, Wildlife #14).																		
1-156	<p>This argument is pretending that opening closed roads, road reconstruction & new road building have no lasting habitat fragmentation & human disturbance impacts, which is simply not true.</p> <p>Human caused mortality and disturbance is the major limiting factor for wolverine populations. However, as stated previously, no breeding populations have been confirmed. Potential impacts to any wolverines dispersing through the project area are disclosed on pages 185-186. In addition to the Travel Management Plan, the designation of connectivity corridors, and project design criteria should also aid in lessening long-term impacts.</p>																		
1-157	There is also no serious analysis of the impacts of logging on a site specific or species specific basis-e.g. The effects of habitat fragmentation and increased disturbance to																		

Commenter	Comment/Response
	wolverine, lynx, and returning gray wolves.
	As stated previously, there are no documented breeding populations of wolverine, Canada lynx, or gray wolf on the Malheur National Forest. Potential impacts to any undocumented populations or individuals from thinning activities are discussed in Chapter 3.
1-158	<p>There's some funny math & biased assumptions at work in this discussion, the impacts become benefits....(HEI discussion pg 98, Ch 3)</p> <p>Thomas et al. (1988) developed the Habitat Effectiveness Index (HEI) model for estimating elk habitat effectiveness on the landscape. Overall habitat effectiveness (HEcsrf) incorporates four variables or indices: cover quality (HEc), size and spacing of cover (HEs), density of roads traveled by vehicles (Her), and quality and quantity of forage (HEf). Forest Service guidelines dictate use of this model.</p>
1-159	<p>Drop the 158 acres in the Vinegar Creek subwatershed & the 3 acres in winter range where satisfactory cover would be eliminated. After all this is a small part of the overall timber sale and not every acre has to be logged. Planning of sale should be designed to respect and abide by Forest Plan Standards, not endlessly seeking to circumvent them.</p> <p>Similar to Comment 1-48, See Response to 1-48. Also see pages 26-27.</p>
1-160	<p>This analysis (last para, pg 98) treats all the differing effects to elk as interchangeable such that long term decreases in road density compensates for cumulative loss of satisfactory cover though discussed road densities do not provide satisfactory cover- i.e. thermal protection from weather, cold, & heat. Likewise a better ratio of forage and cover does not compensate for lost cover values.</p> <p>Satisfactory and marginal cover are often referred to as thermal cover. Until recently, it was believed that deer and elk used thermal cover to moderate harsh weather conditions (i.e., to keep cooler on hot days and to keep warmer on cold days). Results from Cook et al. (1998) suggest that high levels of cover have negative effects on animal performance and that elk selection of dense forest is related more to protection and security needs, especially during hunting seasons.</p> <p>Many stands in the project area are classified as satisfactory or marginal cover and even small thickets of saplings can offer hiding cover. See Response to 1-20 for further clarification.</p>
1-161	<p>There is no discussion in the cumulative effects analysis of the known potential contamination of toxic herbicides to forage plants & grazing animals.</p> <p>Any impact to the environment resulting from the incremental impact of the action when added to effects from other past, present, and reasonably foreseeable future activities are analyzed in this document. No direct, indirect, or cumulative effects analysis for potential contamination by toxic herbicides to forage plants and grazing animals was required. Application of toxic herbicides related to Forest activities will be analyzed in a future project-specific Malheur NF NEPA document and is outside the scope of this project.</p>
1-162	There is no quantitative or detailed qualitative assessment of the actual combined effects of the Districts timber sales on elk populations.

Commenter	Comment/Response
	<p>Big game management on the Malheur National Forest is a cooperative effort between the Forest Service and the Oregon Department of Fish and Wildlife (ODFW), where the Forest Service manages habitat while ODFW manages populations. The agencies cooperate by managing big game according to pre-established Management Objectives (MOs) for each big game management unit. The combined effects of the Districts timber sales on elk populations are represented by population estimates for each big game management unit. An increase in habitat effectiveness for the Galena project would benefit elk and, therefore, benefit elk populations within the project area and forest wide.</p>
1-163	<p>Current Forest Plan DOG and ROG acreages are not large enough to provide for each species habitat needs given the science on that-especially as the acreage is not only far too small but also overlaps (PWFAs & ROGs) and ROGs are not required to be suitable habitat now, eliminating half the habitat designated re: current suitability.</p>
	<p>Changing current Forest Plan Standards and Guidelines is outside of the scope of this project and any proposed Forest Plan Amendments are proposed for the purpose of meeting the project's objectives. The Purpose and Need of the project is to move forest stands towards HRV and improve forest health. This will be done by accelerating development of old forest stand structures, primarily old forest single stratum (OFSS) and old forest multi-strata (OFMS) structural stages within the entire project area. In addition, alternative 3 would expand the MA-13 network, as identified in Table WL-42 (for alternatives 2 and 4), as well as adding additional acreage to meet 900 acre home ranges recommended by Bull and Holthousen (1993) for pileated woodpeckers. These additional acres are displayed in Table WL-45. The 900-acre areas would include acres designated as DOG, ROG, and PWFA's plus the additional 300 acres. Pine marten areas would remain as described in Table WL-42 in the wildlife specialist report.</p>
1-164	<p>So less than 2/5ths of the available habitat designated is really OG!</p>
	<p>For the Galena project's existing condition determination, 35% of the available habitat designated is truly old growth. ROGs and PWFAs will be managed to move towards future old growth conditions as described in the project's purpose.</p>
1-165	<p>What happened to the original ROG for DOG 243, DOG 248, & DOG 249?</p>
	<p>Currently there are no ROG for DOG 243, DOG 248, and DOG 249. The current Forest Plan states: to provide for replacement old growth in the future by managing at least one-third of this management area (25,000 acres) for a sustained yield of old growth. Locate replacement old growth areas within ¼ mile of dedicated areas, and designate and map these areas. Provide old growth replacement areas that are one-half the size of its corresponding dedicated old growth unit. Complete the location of replacement stands primarily in conjunction with the timber sale planning process (Forest Plan pages IV-105-106). This is the timber sale planning process and we have identified ROG for DOG 243, DOG 248, and DOG 249.</p>
1-166	<p>Why were 2 acres removed from DOG 330 & 34 acres removed from DOG 333</p>
	<p>Acres were not removed from DOGs 330 and 334, stands were re-delineated using an interdisciplinary team that evaluated and recommended replacement stands. The recommended stands were more suitable than the existing stands, although they contain slightly less acreage than the original DOGs.</p>

Commenter	Comment/Response
1-167	What happened to the 134 acres in the ROG for DOG 333?
	ROGs and PWFAs associated with DOGs 333 were combined to meet the 300 acre standard. Acres designated for a ROG can also be the same acres designated for a PWFA, thus the table displays those “overlapping” acres only for the ROG to eliminate the appearance of excess designated acres.
1-168	We are objecting to CT and other commercial size logging on cold, cool, and moist forest types-see survey sheets-tree species composition, OG counts, & plant associations.
	The focus of the Galena project is to restore forested stands to more closely resemble historical conditions. The majority of stands to be treated are in the dry biophysical environments. To move stands towards these conditions, there is a need to reduce stand density, increase the proportion of early seral species, and modify forest structure. Treatment units are designated based upon IDT development and verified Forest Service survey information and data.
1-169	ROGs for pileated, three-toed, or pine marten should not be thinned & PWFAs should not be thinned as this degrades habitat suitability for these species, who depend on denser forest, higher levels of down wood & snags.
	There are 3 MIS species that represent old growth habitat, primarily Old Forest Multiple Strata (OFMS) on the forest: pine marten, pileated woodpecker, and three-toed woodpecker. By providing old growth habitat for these species, it is assumed that habitat for other old growth obligate species will be provided as well.
	For Alternatives 2 and 3, pre-commercial thinning would occur in unit 235, which classifies as Stand Initiation, and would treat 25 acres within the proposed PWFA associated with DOG 333. Pre-commercial thinning would reduce tree stocking, increase growth rates on the residual trees, and accelerate the development of old forest structure.
	For Alternative 4, 140 acres of proposed ROG would be thinned. Units proposed for treatment are: 140, 704, 406, 708, and 710. Unit 708 is classified as stem exclusion-open canopy (SEOC), while all others are classified as OFMS. Commercial thinning (HTH) would be used in unit 708 to reduce stocking , increase growth rates on the residual trees, and accelerate development of old forest structure. Within all other units understory removal (HUR) would thin smaller understory trees from beneath larger overstory trees. Stand structure would be converted from OFMS to OFSS.
1-170	The point of the Forest Plan and Amendment 2 are to ensure the viability pileated, pine marten, three-toed & species w/similar habitat needs not just add up numbers of acres regardless of their non-suitability as habitat.
	The purpose of the Galena project is to manage stands toward HRV and improve forest health so that conditions are more sustainable over the long-term. This project plans to accomplish this while meeting the needs of the pileated woodpecker, pine marten, three-toed woodpecker and the white-headed woodpecker. Scientific evidence for the Blue Mountains supports that population viability for pileated woodpecker, pine marten, and three-toed woodpecker is being maintained on the Forest, however viability for the white-headed woodpecker is not.
	Development of large blocks of OFSS structure stands will increase the density and

Commenter	Comment/Response
	<p>distribution of the white-headed woodpecker. Treatments will reduce canopy closures and stand densities. Species such as pileated woodpecker, pine marten and three-toed woodpeckers could be affected by these activities. However, dry forests, even in the YFMS condition, are not particularly productive habitats for these species. Large diameter trees and dead wood habitats are notably lacking. Canopy closures are generally lower. Stands are dominated by ponderosa pine and Douglas-fir with a smaller component of grand fir. While structural stages will change from ones that are more suitable for these species to ones that are less suitable, the overall impact will be much less because of the poorer quality of habitat as it currently exists. Impacts will be primarily to habitats used more for foraging rather than nesting or denning purposes. Habitat viability for pileated woodpecker and pine marten would be maintained via old growth in the moist and cold forest types as well as the DOG/ROG/PWFA and system and the Amendment 2 corridors.</p> <p>In the long-term, restoration of dry forests, i.e., restoring natural conditions and fire regimes, will make these habitats far more self-sustaining for old growth associated wildlife species. Treatments are expected to increase, not reduce, old growth dependent wildlife species diversity.</p>
1-171	<p>Drop the thinning in the LOS connectivity corridors-i.e. units 25,26,+ 271 to better protect LOS species & provide diversity on the landscape. Prescribed fire has a more natural effect & affects 4,315 acres within the LOS corridors.</p> <p>These units are planned for only precommercial thinning in the understory to reduce the fire hazard and to increase the sustainability of the overstory trees >9" that will be retained.</p>
1-172	<p>We object to the thinning in three-toed woodpecker habitat on 537 acres in the cold dry forest type & on 611 acres in the cool-moist forest habitat as such forest types are naturally denser & not outside of HRV, so such thinning is not needed to meet the purpose and need of the project but is detrimental to three-toed woodpeckers and species w/similar habitat needs, and carbon storage.</p> <p>Within the project area, there are 12,200 acres of cold dry forest type, 537 acres of which are proposed for thinning. The majority (326 acres, or <5%) of the stands proposed for thinning are plantations. Also within the project area, there are 5,700 acres in the cool moist forest type, 611 acres (<11%) of which are proposed for thinning. The purpose of thinning in these forest types is to replicate historical conditions that would have mixed severity fire regime as opposed to severe, large scale, stand replacement events evidenced by the Easy and Summit Fires.</p>
1-173	<p>ROGs for pileated and marten habitat and three-toed should not be burned as these species require more down wood-(pileated & marten) & cold dry forest is regularly subject to infrequent stand replacement fire, not frequent, low intensity burning (N. three-toed)</p> <p>ROGs may not currently have all required old growth characteristics but are managed to achieve those characteristics in the future. The purpose is so that when a DOG no longer meets the needed habitat requirements, the ROG can take its place. This management direction will be implemented using prescribed fire and thinning.</p> <p>In the short term, three-toed woodpeckers have additional available foraging and nesting habitat, adjacent to the project boundary, in the Summit Fire post-burn area.</p>

Commenter	Comment/Response
1-174	<p>Drop unit 346-see survey sheet-healthy firs. We are opposed to clear cutting-by any other name.</p> <p>Unit 346 is in the warm dry biophysical environment, the objective of the proposed treatment is to remove most of the ingrown fir trees and plant early seral species to return the species composition to that which is best adapted to the site and is more sustainable in the future.</p>
1-175	<p>Drop unit 180-moist PAG, active pileated and drop unit 178 due to pileated habitat & steep slope & moist PAG above creek-see survey sheet-steep slopes, sedimentation.</p> <p>Units 178 and 180 are in the warm dry biophysical environment, the objective of the proposed treatment is to remove most of the understory ingrown fir trees and to retain the larger early seral species creating old forest single story structure.</p>
1-176	<p>Unsubstantiated conclusion of no change to forest-wide habitat or population trends given no quantification of negative effects to pileated woodpecker & pine marten described-reducing stand density & cover & thus reducing nesting & foraging habitat & underburning reducing foraging habitat for both.</p> <p>Malheur LRMP direction does require population trend analysis for MIS species. Determinations are based on evaluations for known suitable habitat.</p>
1-177	<p>We are in favor of adding acres to meet the 900 acre home ranges recommended by Bull and Holthonsen but the extra acres should be officially added to the MA-13 network and the whole acreage of DOGs, ROGs, & PWFAs should be protected from future logging.</p> <p>Additional acreages already exceed the Land and Resource Management Plan's minimum requirements for Management Area 13 for alternatives 2 and 4 by 18%, and 50% for alternative 3. Changing current Forest Plan Standards and Guidelines is outside the scope of this project.</p>
1-178	<p>We still don't see how thinning cold dry & cool moist habitat would benefit the N. three-toed woodpecker.</p> <p>Taken from the Wildlife Specialist Report;</p> <p>Action alternatives incorporate strategies at varying levels. However, the objective is to change the stand structure, species composition, and stand densities to the historical conditions, resulting in forest structure that is more resilient to natural disturbance events. The increased vigor of trees as a result of the proposed activities would decrease their susceptibility to disturbances that result in heart rot. Thus, the proposed activities could potentially reduce the amount of habitat available for three-toed woodpeckers.</p> <p>Suitable habitat, in the short term, is available directly adjacent to the project area (Summit Fire post-burn). This would provide some mitigation for potential project impacts.</p>
1-179	<p>See earlier opposition to burning in pileated & marten DOGs & PWFAs & also ROGs if they are cool moist mixed conifer and in N. three-toed DOGs & ROGs.</p> <p>Similar to comment 1-172. See response to 1-172.</p>
1-180	<p>Re: NFMA's requirement to ensure the viability of all native vertebrate species, alt 3 appears to be the only possibly legal action alternative by at least acting to provide for viability of pileated woodpeckers & pine marten.</p>

Commenter	Comment/Response
	<p>Taken from the Wildlife Specialist Report;</p> <p>Past logging practices in the Blue Mountains have contributed to local white-headed woodpecker population declines. Scientific evidence supports that population viability is not currently being maintained in the Blue Mountains. Development of large blocks of OFSS structure stands will increase the density and distribution of the white-headed woodpecker. Treatments will reduce canopy closures and stand densities. Species such as pileated woodpecker, pine marten and three-toed woodpeckers could be affected by these activities. However, dry forests, even in the YFMS condition, are not particularly productive habitats for these species. Large diameter trees and dead wood habitats are notably lacking. Canopy closures are generally lower. Stands are dominated by ponderosa pine and Douglas-fir with a smaller component of grand fir. While structural stages will change from ones that are more suitable for these species to ones that are less suitable, the overall impact will be much less because of the poorer quality of habitat as it currently exists. Impacts will be primarily to habitats used more for foraging rather than nesting or denning purposes. Habitat viability for pileated woodpecker and pine marten would be maintained via old growth in the moist and cold forest types as well as the DOG/ROG/PWFA and system and the Amendment 2 corridors.</p> <p>In the long-term, restoration of dry forests, i.e., restoring natural conditions and fire regimes, will make these habitats far more self-sustaining for old growth associated wildlife species. Treatments will increase, not reduce, old growth dependent wildlife species diversity.</p>
1-181	<p>See our survey sheets re: our recommendations for individual sale units planning to convert OFMS to OFSS.</p> <p>Treatment units were planned according to the project's purpose and need and determined based upon the IDT decision-making process.</p>
1-182	<p>We are concerned by the greater potential of alts 4 & 2 to degrade & eliminate pileated & marten habitat, but still seek improvements to alt 3, as above.</p> <p>See response to comment 1-180.</p>
1-183	<p>This is only true for dry PP stands, not most suitable pileated & marten habitat.</p> <p>See response to comment 1-180.</p>
1-184	<p>We are concerned by potential impacts to blackbacked woodpeckers from thinning in natural mixed conifer cool & moist habitat types. We are also concerned by the large scale of logging in alts 2&4 removing too many large snags for woodpeckers needing large snags re: hazard tree logging, landings, and roading.</p> <p>Thinning and burning would have negative effects to black-backed woodpeckers by reducing stand density and cover, thus reducing nesting and foraging habitat. In the long term, stand structure would better mimic historical sustainable conditions and would be considered more beneficial to old growth dependent species. To minimize the effects to black backed woodpeckers, no more than 5,000 acres a year will be prescribed burned. Of these 5,000 acres, prescribed burn boundaries larger than 1,000 acres will require wildlife staff evaluation, ensuring heterogeneity is maintained across the landscape. In prescribed burn only areas (15,662 acres), it is anticipated that a large pulse of small diameter snags will benefit black-backed woodpeckers. However, this benefit will</p>

Commenter	Comment/Response
	diminish with each additional prescribed burn entry.
1-185	<p>We are also concerned by removal of live trees up to 20.9" dbh re: removing future large snags.</p> <p>Galena Design Criteria, specifically Wildlife #s: 11, 13, 14, and 18, address those concerns and minimize the adverse affects to dead and defective wood habitat dependent species.</p> <p>Also see responses to 1-55 and 1-58.</p>
1-186	<p>We oppose commercial logging in late Successional mesic mixed conifer habitat because fuel reduction does not have a restorative effect there and would negatively affect pileated woodpecker, pine marten, and associated neotropical songbirds: Vaux's swift, Townsends warbler, varied thrush, olive-sided flycatcher, et al. as well as carbon storage & recreation.</p> <p>See response to comment 1-180. Also see responses to 1-55 and 1-58.</p>
1-187	<p>We oppose prescribed burning during the spring reproductive season in part due to impacts to neotropical migratory birds.</p> <p>The first entry of prescribed burning would be scheduled for spring when fuel moisture conditions are generally higher. High moisture conditions will help meet the following objectives: to reduce surface fuels, reduce litter depth, and increase canopy base height. Prescribed fire is not being utilized to change the structural stage of any of the stands. Spring burning also reduces emissions compared to fall prescribed burning or wildfires in the summer. Burn windows may be adjusted for specific units based on weather conditions.</p>
1-188	<p>There is no substantiation given for the calculation that burn boundaries being smaller than 1,000 acres will adequately protect neotropical migratory songbird habitat.</p> <p>Large prescribed fires (greater than 1000ha) could potentially homogenize the landscape for some species and decrease overall wildlife habitat (Pilliod et al. 2006, Brown et al. 2004). Approximately 25,000 acres within the project area are proposed for underburning and will require two entries in order to meet the desired objectives. To accomplish burning in 10 years, 5,000 acres (>1000ha) will be underburned each year. In an effort to minimize impacts to wildlife and to further maintain habitat diversity, design criteria were developed. Thinning using variable density spacing will be implemented and prescribed burn boundaries larger than 1,000 acres will require wildlife staff review to ensure neotropical migratory bird objectives are being met. The objective is to mimic natural disturbance patterns and processes while minimizing the impacts to neotropical migratory birds. Design Criteria for Wildlife # s: 15-20 further mitigate losses to neotropical migratory birds as a result of underburning.</p>
1-190	<p>There is no justification given for Table 24 assumptions of no impacts to neotropical migratory songbird populations.</p> <p>The FEIS discloses possible take of neotropical migratory birds in relation to proposed alternatives (Thinning and Prescribed Fire, pages 222-223). Although a small number of avian species may benefit from high intensity wildfires, a greater number of neotropical migratory birds would experience detrimental effects. Project design measures, such as variable density spacing, and breeding and seasonal restrictions, should help offset</p>

Commenter	Comment/Response
	impacts to neotropical migratory birds. In addition, project activities are expected to take place over a larger temporal scale, typically over several years, giving species the opportunity to move to adjacent areas where there are fewer disturbances.
1-191	<p data-bbox="396 365 1357 428">Hermit thrush are found in late Successional and mature multistoried mesic mixed conifer not just subalpine forest.</p> <p data-bbox="396 449 1425 546">Although hermit thrush appear to use all types of mature forest, Altman (2000) identified the thrush as a focal species associated with important attributes or conditions within the unique habitat type Subalpine Forest.</p>
1-192	<p data-bbox="396 562 1403 625">Again toxic herbicide impacts to neotropical songbirds are completely ignored-eg loss of insect prey, loss of native plants, direct spray toxicity.</p> <p data-bbox="396 646 1419 877">Any impact to the environment resulting from the incremental impact of the action when added to effects from other past, present, and reasonably foreseeable future activities are analyzed in this document. No direct, indirect, or cumulative effects analysis for potential contamination by toxic herbicides to forage plants and grazing animals was required. Application of toxic herbicides related to Forest activities will be analyzed in a future project-specific Malheur NF NEPA document and is outside the scope of this project.</p>
1-193	<p data-bbox="396 894 1419 1096">As with other cumulative effects discussions there are no predictions as to how much negatively affected species would suffer-re: effects to species viability cumulatively from combined impacts of different management actions and other factors. There is no use of the precautionary principle in the face of potential impacts & uncertain viability-eg: avoidance of spring reproductive season & burning & commercial logging & fuel reduction in naturally denser cool moist & cold dry forest.</p> <p data-bbox="396 1117 1419 1318">The purpose of an EIS, as defined by the NEPA process, is to disclose any significant impacts from a project's activities. Species viability assessments are typically focused primarily on TES species and accurate population viability assessments require intensive species-specific monitoring not required by the Malheur LRMP. The Malheur National Forest LRMP and Regional guidance directs the use of habitat as a proxy for species viability for most species.</p> <p data-bbox="396 1339 1425 1436">The Galena FEIS describes potential project-specific and cumulative impacts to wildlife species, specifically TES, Featured, MIS, Sensitive, and landbirds. Analyses of potential effects to native wildlife species is presented in the appropriate format.</p>
1-194	<p data-bbox="396 1453 1412 1516">The cumulative effects analysis fails to consider in detail the impacts of Galena actions to neotropical songbirds.</p> <p data-bbox="396 1537 815 1568">Please see Response to 1-190, 1-35.</p>
1-195	<p data-bbox="396 1585 1412 1724">Don't log the only OFMS in the Placer Gulch PFA and drop CT & other commercial logging in other moister mixed conifer OFMS in the project area. We appreciate your decision not to log the other PWFAs and Goshawk nest stands but this is not enough to provide for Goshawk habitat needs.</p> <p data-bbox="396 1745 1432 1904">The Placer Gulch PFA is comprised predominantly (72%) of young, multi-strata structure. PFAs are delineated on a site-specific basis based upon existing suitable habitat. Only 8% of the PFA exhibits old forest multi-strata structure and it is reasonable to assume that northern goshawks utilizing the site may be using areas outside of the designated PFA. However, in the long term (25+ years), treatments would alter stand</p>

Commenter	Comment/Response
1-196	<p>structure to better mimic historical sustainable conditions which may be considered more beneficial to old growth related species such as goshawks.</p> <p>30 acres of nest site protection is probably not enough given nest stands up to 200 acres.</p> <p>Reynolds et al. (1992) recommends 30 acres be deferred from any adverse management activities in nest areas. For the three goshawk territories in the Galena project area, the stand or stands (a group of trees in a specific area that are sufficiently alike in composition, age, arrangement, and condition so as to be distinguishable from the forest in adjoining areas) where the nests are located are deferred from any mechanical treatment and will not be underburned. Acreages for each stand associated with the nest areas exceed 30 acres and are: Deerhorn, 79 acres; Little Boulder, 93 acres; and Placer Gulch, 129 acres. If additional goshawk nests are found, 30 acres of the most suitable habitat would be deferred from burning and cutting for each nest.</p>
1-197	<p>There is no ecologically sound reason to "thin" subalpine habitat.</p> <p>For the project area, subalpine habitat is defined as habitat above 6000 ft elevation. Units proposed for thinning at elevations higher than 6000 feet will meet the purpose and need of the project as stated in Chapter 1 page 11 and are as follows;</p> <p>Four (4) plantation units totaling 26 acres in the cool moist biophysical environment are proposed for thinning to reduce stand densities, and change stand structure to increase resiliency.</p> <p>Seven (7) units in the warm dry biophysical environment totaling 256 acres are proposed to move stands toward HRV and improve forest health.</p> <p>One (1) 28 acre unit in the cool wet biophysical environment will be managed from OFMS to OFSS to increase the survival of existing large pine and larch trees.</p> <p>The focus of the Galena project is to restore forested stands to more closely resemble historical conditions. To move stands towards these conditions, there is a need to reduce stand density, increase the proportion of early seral species, and modify forest structure. Treatment units were designated based upon IDT development and Forest Service survey information and data.</p>
1-198	<p>We are concerned by likely cumulative impacts to blue grouse from action alts, some of which could be avoided through no burning during the spring reproductive season, less overall logging & burning, retention of all MTDF on ridgelines, and no new rd construction or opening of overgrown closed roads.</p> <p>Blue grouse use a wide range of nesting habitats and, in eastern Oregon, appear to use early succession forest habitat for breeding and brood rearing, as well as subalpine habitat, over heavily forested areas. Grouse also use riparian areas as breeding habitat. Since project activities will have negligible impacts to subalpine and riparian habitats, impacts to breeding blue grouse are expected to be relatively low. In addition, in the long term, treatments may benefit this species by providing open park-like stands of mature Ponderosa pine and Douglas fir.</p>
1-199	<p>There is no quantification or detailed analysis of cumulative effects to N. goshawk viability in the area.</p> <p>The Malheur National Forest LRMP and Regional guidance directs the use of habitat as a proxy for species viability for MIS, Sensitive and Featured species. Northern goshawk</p>

Commenter	Comment/Response
	territories are monitored throughout the forest for occupancy and habitat use. Therefore, the Galena FEIS cumulative effects analysis focuses primarily on potential impacts to breeding habitat.
2-16	<p>The proposed action requirements for dead and downed material are all vastly over stated. The “desired level” is way more than historic levels. The Forest Service is attempting to provide habitat for species that were not historically present and must provide for more realistic levels of dead and down and salvage merchantable trees that are in excess of those levels.</p> <p>NEPA analyses for Malheur National Forest project activities are guided by the existing Malheur NF LRMP. Current Regional guidance through the Regional Forester’s Amendment #2, and Blue Mountain Forest Plan Revision direction is aimed toward moving forest stand structure toward the Historical Range of Variability (HRV), the “desired condition” developed utilizing Forest Service inventory and survey data and technical guidance.</p>
4-7	<p>Need to identify a desired level of snags and dead wood (50-80% DecAID tolerance levels) and run stand simulation models to show how these levels can be met over time and across the landscape.</p> <p>DecAid, a web-based Forest Service advisory tool, provides a summary and synthesis of scientific literature, research data, forest inventory databases, wildlife databases, and expert guidance, but does not provide snag retention guidelines or modeling programs. The Malheur NF is currently in the process of developing, in coordination with the Regional Office and adjacent Forests, a more accurate representation of snags and downed wood components across the Forest.</p>
4-9	<p>Habitat for species that prefer dense forests, such as pileated woodpecker and pine marten, will be more adversely affected than disclosed in the DEIS. The FS needs better tools to weigh and balance the competing effects on species that prefer less dense vs more dense forests (and forests with less dead wood vs more dead wood).</p> <p>See response to 1-180.</p> <p>Taken from the Wildlife Specialist Report;</p> <p>Past logging practices have contributed to local white-headed woodpecker population declines. Scientific evidence supports that population viability is not currently being maintained in the Blue Mountains. Development of large blocks of OFSS structure stands will increase the density and distribution of the white-headed woodpecker. Treatments will reduce canopy closures and stand densities. Species such as pileated woodpecker, pine marten and three-toed woodpeckers could be affected by these activities. However, dry forests, even in the YFMS condition, are not particularly productive habitats for these species. Large diameter trees and dead wood habitats are notably lacking. Canopy closures are generally lower. Stands are dominated by ponderosa pine and Douglas-fir with a smaller component of grand fir. While structural stages will change from ones that are more suitable for these species to ones that are less suitable, the overall impact will be much less because of the poorer quality of habitat as it currently exists. Impacts will be primarily to habitats used more for foraging rather than nesting or denning purposes. Habitat viability for pileated woodpecker and pine marten would be maintained via old growth in the moist and cold forest types as well as the DOG/ROG/PWFA and system and the Amendment 2 corridors.</p>

Commenter	Comment/Response
	In the long-term, restoration of dry forests, i.e., restoring natural conditions and fire regimes, will make these habitats far more self-sustaining for old growth associated wildlife species. Treatments will increase, not reduce, old growth dependent wildlife species diversity.
7-2	<p>Mitigating habitat fragmentation is among the top priorities of conservationists. Landscape connectivity counteracts ecological dissolution ...by allowing the dispersal and migration of key species (bats, beaver, bighorn sheep, Botrychium, bull trout, butterflies) over large areas, restoring ecological diversity and resilience to the land and waters. The DEIS's failure to even consider this issue is unacceptable.</p> <p>The DEIS addressed habitat fragmentation by designating 6,751 acres of connectivity corridors connecting all LOS/DOG habitats in all action alternatives. Long-term connectivity between LOS would be maintained according to amendment #2 standards. These corridors would continue to provide for the free movement of LOS associated and other species. In addition, road decommissioning and road closures would further increase landscape connectivity.</p>
8-3	<p>The amount of decommissioning proposed in the preferred alternative is not sufficient to mitigate the significant impacts of the current road system. A project wide analysis of road density is not useful when it ignores the impact of high road densities in particular zones.</p> <p>Alternatives 2 and 4 will relocate approximately 6 miles of road out of the RHCAs while still providing access. The hydrology specialist report and the roads specialist report specifically address the amount of road miles located within RHCAs and on hillslopes by alternative, providing additional information by alternative.</p>
8-4	<p>New road construction, road maintenance, and reconstruction is particularly substantial in the Big Game Winter Range Management Area. The proposed upgrading of roads and additional maintenance will likely increase traffic throughout winter range area, leading to increased elk mortality and disturbance.....the final management decision should drop plans to build and reconstruct new roads in the big game winter range management area, and should only perform necessary maintenance to roads determined to be necessary to the Forest's minimum road system.</p> <p>See response to 1-76.</p> <p>Open road densities after implementation of all action alternatives would be at or below standards set by the Forest Plan and be closer to the desired open road densities.</p>
8-6	<p>The connectivity corridors are crisscrossed by both closed and open roads, placing the integrity of these designated corridors in question. The DEIS does not adequately evaluate the impact that road related activities, particularly the opening of closed roads will have on wildlife migration.</p> <p>The Galena project mitigates this problem by closing 6.3 miles of roads and decommissioning 21.5 miles of roads in the proposed action. Although the opening of closed roads would occur, all action alternatives would reduce open road densities to at or below standards set by the Forest Plan and be closer to desired open road densities.</p>
8-7	It would be extremely useful if the Final EIS would include maps of existing and proposed road systems overlaid by connectivity corridors....as well as a narrative of the analysis evaluating the effects of proposed road-related activities on those corridors.

Commenter	Comment/Response
	The FEIS includes maps (FEIS, Appendix C) portraying the information requested as well as discussion of the analysis in the Wildlife section of Chapter 3 in the FEIS.
Heritage	
1-102	<p>Cultural Design Criteria #5: Cultural sites can always be avoided-just don't log there re: units.</p> <p>The Design Criteria #5 adequately protects the cultural sites and mitigation measures are in compliance with all applicable laws and regulations concerning the protection of cultural sites.</p>
Recreation and Visuals	
1-200	<p>This is an incredibly biased description of effects of action alts to visuals as the majority of the national and regional public does not like the appearance of logging.</p> <p>The visual impacts of logging (skid trails, fresh cut trees, landing piles) are short lived and are planned to reduce the impacts along the main travel corridors. Effects to visual quality are measured in terms of whether alternatives or elements of a proposal meet the visual quality objectives outlined in the Forest Plan. The framework for rating the scenic stability and the scenic integrity is the public lands in the planning areas, as seen from within the planning area or from afar, according to land management standards. Scenic integrity is driven by viewpoints within or immediately adjacent to the planning area, primary along County Road 20 or State highway 7. It is also a true that the public generally likes to view large trees in parklike stands, which the treatments are planned to move the forest conditions towards.</p>
1-201	<p>5-10 year alteration of forest structure & soils from logging, slash piles, tractor and skyline skidding, is not "slight" alteration.</p> <p>Activities in the visual foreground will be impacted through tractor skidding which have shorter visual impacts, normally less than 5 years. Professional opinion of the landscape specialist is that the visual impacts will be mostly gone within 5 years and considering the long term nature of forest management is only a short time period. Activities with other prescriptions will not occur in the visual foreground and will likely not be visible from the visual corridors.</p>
1-202	<p>There is no mention of visual impacts from heavier logging than CT (HRS, HUR)</p> <p>HUR (understory removal) is intended to remove young growth from around mature early seral species such as ponderosa pine and western larch, improving the ability to view the orange barked trees as well as removing competition. HRS (return to early seral species) will remove more trees but is planned to increase the numbers of orange barked trees in the future where they have been eliminated by past actions. There is only one instance of HRS prescription within a ½ mile visual corridor in the project. However, this unit is not visible from the visual corridor because of topographical influences.</p>
1-203	<p>Who is defining "visual quality objectives"- obviously the Forest Service, not the public! This is the scantiest cumulative effects pseudo analysis, saying basically that since visual objectives are ok with the Forest Service, there will be no cumulative visual impacts from logging, roading, burning....which is ridiculous.</p>

Commenter	Comment/Response
	The visual quality objectives are set forth in the Forest Plan, which also contains the standards and guidelines on actions to ensure the objectives are being met.
1-204	<p>Interesting that there is no discussion of logging impacts to the recreational experience though much of the visiting public does not like logging.</p> <p>There is an analysis of the visual impacts in the Visuals section in Chapter 3. Dispersed camps and campgrounds are excluded from treatments, as are trails and other recreational areas. There will be short term impacts to forest visitors during actual thinning and logging operations, as well as during and immediately following prescribed burning activities. These impacts were considered in comparison to the risk of large scale high intensity fires such as the Summit Fire of 1996 and other forest health issues.</p>
Rangeland	
1-103	Rangeland Design Criteria #4: This is the kind of practice that causes aspen decline-No livestock use/development of water sources in aspen areas.
	Alternate water sources will be located away from aspen stands and will be analyzed as separate projects. Doing so will reduce impacts to adjacent riparian areas.
3-1	<p>We are concerned that the proposed thinning and under burning may create areas that are sensitive to damage from livestock grazing (particularly where bunch grasses or other vegetation requiring long recovery periods are present.</p> <p>The vegetation of the Blue Mountains is highly adapted to periodic fire in forest, shrubland, and grassland ecosystems. The predominant vegetation would recover quickly after underburning. The District Range Specialist will determine when forage has adequately recovered before authorizing grazing. Due to the type of vegetation present within the project area long periods of rest are not expected.</p>
3-2	<p>We are concerned that the proposed management activities may provide additional riparian access to livestock and (if the uplands are not fully recovered at the time of turn out) encourage riparian use.</p> <p>The decommissioning of roads with RHCAs will restrict livestock access to riparian areas. The District Range Specialist will determine when forage has adequately recovered before authorizing grazing. Due to the type of vegetation present within the project area long periods of rest are not expected.</p>
3-3	<p>We encourage the Forest Service to include specific measures within the FEIS for the Galena Project to ensure that livestock will not adversely impact burned areas or Riparian Habitat Conservation Areas (RHCAs) following treatment.</p> <p>Utilizing the 2003 Post –Fire Interim Grazing Guidelines will ensure that livestock will not adversely impact burned areas.</p>
3-4	<p>We recommend that FEIS include measures in the 2007 interim policy for post fire management among the design criteria (Ch. 3, pg 156 DEIS). If not included among the criteria in the interim policy, we recommend that the FEIS include a design criterion specifying that grazing would not resume until ground cover has returned to its pre-fire condition.</p> <p>The 2003 Post-Fire Interim Grazing Guidelines have been incorporated into the design measures.</p>

Commenter	Comment/Response
Invasive Plants	
1-205	<p>We are concerned about the likely increase in invasive plant introduction & dispersal from the action alternatives.</p> <p>With only a few small presently known weed occurrences, design elements and monitoring protocols incorporated into this project would limit the potential for noxious weed spread.</p>
1-206	<p>Paragraph 3: These are reasons we prefer the least disturbance- modified alt 3 (as per our comments)</p> <p>Alternative 3 does have the least amount of disturbance associated with harvest activities; however, the design elements will mitigate the added risk of establishment and dispersal of weeds in Alternatives 2 and 4.</p>
1-207	<p>It is much easier & less costly to prevent the introduction & dispersal of invasive plants than to control them later with herbicides or otherwise. The cumulative effects discussion is overly optimistic in this regard.</p> <p>Controlling known weed sites within the project area with herbicides or other methods is a method of prevention. This project does not propose any treatment of invasive plants with herbicides. Preventing the spread of existing weed sites and the establishment of new weed sites is addressed in the Invasive/Noxious Weed and Range Report.</p>
7-3	<p>Upland areas with the proposed thousands of acres of post logging and hence disturbed sites, will facilitate the further spread of such noxious species as Medusahead Rye and Ventanata known to be already established within the project area, albeit, but a “toehold” so far.</p> <p>The incorporated design elements are intended to mitigate the further spread and establishment of all invasive/noxious weeds.</p>
Economics	
1-15	<p>Unlikely that proposed level of logging is a sustainable flow of timber and wood products...would contribute to future economic instability as exacerbating an economic boom bust cycle.</p> <p>The material planned to be removed with this project would be utilized over the course of several years in combination with material from other projects on the Forest. The removal of material in this fashion would provide a sustainable flow of timber and wood products.</p>
1-75	<p>Considering the scale of road work considered necessary (although based on the alternatives to the proposed action obviously much of it is unnecessary) this project would be at a large deficit to the federal treasury.</p> <p>Correct. The economic analysis does show that the sale of timber and wood products is at a deficit. The fact that much of the road work is unnecessary for the timber sale portion of the project is also true. However, the purpose of the project is not limited to a timber sale. The purpose of the project is identified in Chapter 1 of the DEIS and</p>

Commenter	Comment/Response
	includes developing a trend toward more resilient historical vegetation; reduced fuels; providing an adequate road system while reducing impacts to sediment delivery to streams and impacts to aquatic species and wildlife; accelerating the development of future late and old structure single stratum wildlife habitats; aspen restoration; and providing wood products to help maintain community stability and infrastructure. Therefore the IDT developed and analyzed the road work for the project based upon the entire project purpose and not just for the sale of forest products.
1-93	<p>Helicopter logging is very expensive and would occur at a time when there is not great market for saw logs, increasing the economic deficit for this sale.</p> <p>Correct. The cost of helicopter logging is reflected in the bid price of Alternative 4 of the economic report found in the project record as well as in Chapter 3 of this FEIS.</p>
1-94	<p>Alt 4 is clearly pandering to the timber industry's desires when what is really needed is a sane transition to smaller diameter utilization and diversification of local economies away from over reliance on saw logs off public lands. Neither alt 4 or 2 represents sustainable levels of extraction.</p> <p>The reasons for developing alternatives to the proposed action are given for Alternative 4 on page 34 of the FEIS and for Alternative 3 on page 32 of the FEIS. Concerning small diameter utilization see response to comment 1-55 under the Alternatives section of this Appendix. Concerning sustainable levels of extraction please see response to comment 1-15.</p>
Findings/Disclosure	
1-234	<p>Paragraph 2: This ignores cumulative impacts to long term productivity. This ignores the loss of long-term productivity that has already resulted despite adherence to (imperfect) Forest Plan standards & guidelines & design measures in past projects.</p> <p>Most of the commercial thinning will be 9-15" trees with occasional trees over 15" harvested. These stands are generally second growth trees which grew up after the railroad logging in the area. One of the purposes of this project was to maintain and enhance late and old structure (LOS) forest stands for wildlife dependent on these habitats. Thinning will increase the growth rates creating large trees sooner, improving water yields, and reducing carbon loss from wildfires. The effects of each alternative, including cumulative effects are given in Chapter 3 of the FEIS.</p>
1-235	<p>Paragraph 3: In all these EISs there is never any anticipated losses of species, yet the losses happen-cumulatively - and need to be avoided by recognizing the potential for species extirpation & avoiding causes of extirpation-such as incremental elimination of habitat for goshawks, fish species, etc.</p> <p>With the information currently available, only TES species are assessed under NEPA for possible loss of population viability or extirpation relating to local populations. Information on TES species can be found for wildlife and fish in Chapter 3 of the FEIS. Potential impacts to wildlife and aquatic species related to project activities are determined using the best available science, available wildlife and fish survey data, and professional expertise. Cumulative and incremental impacts from associated projects are considered during project design.</p>

